

EXHIBIT 8
FILED UNDER SEAL

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

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STATE OF TEXAS, ET AL.,

Plaintiffs,

C.A. No.

vs.

4:20-cv-00957 (SDJ)

GOOGLE LLC,

Defendant.

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THURSDAY, NOVEMBER 21, 2024

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Videotaped Deposition of PAUL R. MILGROM,
Ph.D., held at Freshfields Bruckhaus Deringer,
855 Main Street, Suite 300, Redwood City, California,
beginning at 9:03 a.m., before Sandra Bunch
VanderPol, FAPR, RMR, CRR, CSR #3032

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Job No. MDLG7014133

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5
6 THE VIDEOGRAPHER: Alejandro Zamora Ruiz

7 THE TECHNOLOGIST: Lance Hoepfner

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EXHIBITS

DEPOSITION OF PAUL R. MILGROM, Ph.D.

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1 BE IT REMEMBERED that on Thursday,
2 November 21, 2024, commencing at the hour of
3 9:03 a.m., at the law offices of Freshfields
4 Bruckhaus Deringer, 855 Main Street, Suite 300,
5 Redwood City, California, before me, Sandra Bunch
6 VanderPol, a Certified Shorthand Reporter in and for
7 the State of California, personally appeared,

8 PAUL R. MILGROM, PH.D.

9 Expert witness herein, who, having been duly
10 sworn, was thereupon examined and interrogated as
11 hereinafter set forth.

12 --o0o--

13 THE VIDEOGRAPHER: We are now on the record.
14 My name is Alejandro Zamora Ruiz. I am the
15 videographer for Golkow.

16 Today's date is November 21st, 2024 -- give
17 me a second. I've got to start over. There we go.
18 Sorry about that.

19 We are now on the record. My name is
20 Alejandro Zamora Ruiz. I am the videographer for
21 Golkow. Today's date is November 21st, 2024, and the
22 time is 9:03 a.m. Pacific Time.

23 This video deposition is being held in
24 Freshfields at 855 Main Street, Redwood City,
25 California 94063, in the matter of the State of Texas

1 et al., vs. Google, Inc. -- or Google LLC, for the
2 United States District Court, Eastern District of --
3 or Eastern District of Texas, Sherman Division.

4 The deponent is Paul Milgrom.

5 Will counsel please identify themselves?

6 MR. EWALT: Andrew Ewalt, from Freshfields,
7 on behalf of Google.

8 MR. HENDERSON: Andrew Henderson from
9 Freshfields on behalf of Google.

10 MR. MOORTHY: Neelesh Moorthy, from Axinn,
11 on behalf of Google.

12 MS. ABSTON: And I'm Alex Abston. I'm here
13 on behalf of plaintiffs.

14 MR. DeROSE: Zeke DeRose on behalf of the
15 plaintiffs, the Lanier Law Firm.

16 MR. GLENN: Ethan Glenn, Norton Rose
17 Fulbright, on behalf of plaintiff states.

18 THE REPORTER: Okay. Raise your right hand,
19 sir.

20 Do you solemnly swear or affirm the
21 testimony you are about to give in this proceeding
22 shall be the truth, the whole truth, and nothing but
23 the truth, so help you God?

24 THE WITNESS: I do.

25 THE REPORTER: Thank you.

EXAMINATION

BY MS. ABSTON:

Q. Good morning, Dr. Milgrom.

A. Good morning.

Q. Could you please state your full name for the record, sir.

A. Yes. My name is Paul Robert Milgrom.

Q. And you understand that you're under oath today?

A. Yes, I do.

Q. Okay. And I intend to use all seven hours that we have today, but I understand that you've been a little bit under the weather. So if at any point in time, you need to take a break, will you just let me know?

A. Sure. Will do.

Q. Okay. Are you well enough --

A. Sorry.

Q. That's okay. No need to apologize.

A. I had to get it out.

Q. Are you well enough to continue today?

A. I am, yes.

Q. Okay. Are you under any medications that may impair your ability to answer my questions truthfully today?

1 A. I don't believe so, no.

2 Q. Are you on any medications today that may
3 impair your recollection?

4 A. No.

5 Q. Okay. I'll do my best to take frequent
6 breaks, but, again, if you need a break, you tell me,
7 and you tell me how long. Okay?

8 A. Uh-huh.

9 Q. And then you've been deposed before;
10 correct?

11 A. Yes.

12 Q. Okay. So I know you know the rules of the
13 road, but just a quick refresher.

14 At different points in time, there may be
15 some objections that come from Mr. Ewalt.

16 If you need to rephrase the question or you
17 don't understand it, will you please let me know?

18 A. Okay.

19 Q. And for clarity of your testimony and the
20 record, you need to give verbal answers to my
21 questions today.

22 Do you understand that?

23 A. Yes, I do.

24 Q. Okay. Then let's get started.

25 To make today a little bit easier and

1 clearer throughout, I wanted to see if we could agree
2 on some terminology so that we could refer to the
3 same things throughout.

4 Does that sound okay?

5 A. That sounds fine.

6 Q. Okay. Throughout 2024 you have offered
7 opinions and testimony on behalf of Google in what
8 some refer to "the DOJ trial" or "the Department of
9 Justice trial"; is that correct?

10 A. Yes.

11 Q. Are you aware of what court that case is
12 located in?

13 A. Yes. That was in Virginia.

14 Q. Okay. Do you recall the dates of your
15 expert testimony that you provided in that trial
16 brought by the Department of Justice?

17 A. It was in September, but, no, I don't recall
18 the exact dates.

19 Q. And you sat for a deposition and testified
20 at trial in this matter; is that correct?

21 A. In that matter.

22 Q. In that matter.

23 A. Yes.

24 Q. And do you recall the date of your
25 deposition in the DOJ matter?

1 A. No, I don't.

2 Q. So can we agree today that when I refer to
3 phrases like "the DOJ trial" or "the DOJ case," we
4 are referring to the ongoing trial taking place in
5 the Eastern District of Virginia between the
6 Department of Justice and Google pertaining to
7 ad tech?

8 A. Yes.

9 Q. And then you're here today, though, to
10 testify on behalf of Google in a different case as an
11 expert witness; right?

12 A. That's right.

13 Q. Okay. Are you aware of what court that this
14 case is located in?

15 A. Yes. This is in Texas.

16 Q. Okay. Are you aware of how many plaintiffs
17 are bringing this lawsuit against Google?

18 A. I don't recall the number.

19 Q. Okay. Have you reviewed the complaint in
20 preparation for your deposition testimony today?

21 A. Well, some time ago I reviewed the
22 complaint.

23 Q. Did you review it after your DOJ trial
24 testimony?

25 A. I looked at it. I didn't read it again from

1 front to back after the DOJ testimony.

2 Q. Okay. Did you look at it before you issued
3 your report in this matter on July 30th, 2024?

4 A. Yes.

5 Q. Okay. And you haven't reviewed it since
6 then?

7 A. Not front to back.

8 Q. Okay. Are you aware of which version of the
9 complaint that you looked at prior to issuing your
10 report on July 30th, 2024?

11 A. I think -- well, I think so, but I'm not
12 certain.

13 Q. Okay. Do you have an idea of what the date
14 of the complaint was that you looked at for your --

15 A. I'm remembering Version 4. Is that -- does
16 that sound right? I'm sorry. I'm just -- I'm not
17 sure.

18 Q. Okay. Okay. And does your -- the report
19 that you issued here in this matter on July 30th,
20 2024, pertain to all the plaintiffs that are
21 contained within that complaint?

22 A. Well, the report speaks for itself, but it
23 pertains to all the -- all the allegations in that
24 complaint.

25 Q. Okay. And can we agree today that when I

1 refer to phrases like "this case" or "your July 30th
2 report" or "the EDTX case," we're referring to the
3 upcoming trial taking place in the Eastern District
4 of Texas between various states and Google pertaining
5 to adtech?

6 A. Yes.

7 MR. EWALT: Objection to form.

8 You can answer.

9 THE WITNESS: Yes.

10 BY MS. ABSTON:

11 Q. Okay. And you understand when I use the
12 term "Texas," unless I state otherwise, I'm referring
13 to all plaintiffs' states and territories that are
14 listed in the May 2023 Amended Complaint?

15 A. Okay. We can understand that. Sure.

16 Q. Great. And then throughout this
17 deposition -- last term -- can we agree that when I
18 refer to "Google," unless otherwise stated, I'm
19 referring to Google as a whole, which would include
20 Alphabet, unless otherwise specified?

21 MR. EWALT: Objection to form.

22 THE WITNESS: I understand.

23 BY MS. ABSTON:

24 Q. Okay. Then let's get started.

25 What I want to first start off with is your

1 CV. And we're going to mark your CV as Exhibit 1,
2 which is M-2 for our exhibit share.

3 A. Okay.

4 (Exhibit No. 1 was marked.)

5 BY MS. ABSTON:

6 Q. Are you aware that a CV was produced with
7 your expert report in this matter?

8 A. Yes. It's toward the back of my report.
9 There we go. Page 452. Mm-hmm.

10 Q. Okay. And I will represent to you that this
11 was attached to your Eastern District of Texas expert
12 report as Appendix A.

13 Does that appear to be correct?

14 A. That's what it says on its face.

15 Q. Okay. And so this was attached to the
16 report that you issued on July 30th, 2024.

17 Does that appear correct?

18 A. Yes.

19 Q. Do you have a more recent CV?

20 A. Do I have a more recent CV? Yes.

21 Q. Okay. And what is the date of the most
22 recent CV?

23 A. Well, I keep it online, and when things
24 changes, it changes online. So if we were to print
25 it, it would have today's date, I imagine.

1 MS. ABSTON: Okay. So on a break, what I'd
2 like to do is print that CV so that we can walk
3 through it and mark it. And I'll ask, Counsel, that
4 if the CV is updated between now and the time of
5 trial, that you could please provide us with those
6 updates.

7 BY MS. ABSTON:

8 Q. So -- okay. So we do have a more recent CV,
9 but for the time being, do you believe that the CV
10 issued on July 30th, 2024, is complete and
11 accurate --

12 A. Yes.

13 Q. -- at the time it was issued?

14 A. It was current as of that date, yes.

15 Q. Okay. And what -- what updates to your CV
16 can you recall since then?

17 A. Oh, at least one of the papers that's marked
18 as a working paper has been published and would move
19 from the "Working Paper" section to the "Published
20 Paper" section.

21 I think that might be the only one that I --
22 that I recall offhand.

23 Shall I look for it?

24 Q. Yes. We'll go there in just a minute, if
25 that's okay. But I am going to refer to this as

1 Exhibit 1 going forward.

2 A. Uh-huh.

3 Q. So as you currently sit here today, do you
4 reside in Stanford, California?

5 A. I do.

6 Q. And do you have any intention of moving in
7 the near future?

8 A. No.

9 MS. ABSTON: Okay. Give me one second.

10 Q. Okay. Let's open up your CV.

11 A. Okay.

12 Q. And I see you've got your A.B. in
13 mathematics with high honors from the University of
14 Michigan in May 1970; is that correct?

15 A. That's correct.

16 Q. I'd like to flip to page -- I think we're
17 going to start on page 452 of Exhibit 1.

18 Do you see that?

19 A. Of Exhibit 1. Is this Exhibit 1?

20 Q. Yes. This is Exhibit 1.

21 A. Okay. Yep. Okay.

22 Q. So how did you land on attending the
23 University of Michigan?

24 A. Well, I grew up in Michigan. I --
25 University of Michigan was, it seemed to me at the

1 time, the best university in Michigan, and my parents
2 told me I should -- at the time I should go somewhere
3 close to home. So that was it.

4 Q. Okay. And then in 1978, you graduated with
5 an M.S. in statistics from Stanford; is that correct?

6 A. Yes, that's right.

7 Q. And what drew you from Michigan to Silicon
8 Valley?

9 A. Oh, well, it wasn't -- I didn't go from
10 Michigan to Silicon Valley.

11 Q. Oh, okay. So what happened after you
12 graduated from Michigan?

13 A. I graduated from Michigan in 1970, and then
14 I became an actuary. I worked -- passed a bunch of
15 actuarial exams. I worked as an actuary for about
16 five years.

17 Q. Okay. So from May 1970 to 1975, you worked
18 as an actionary?

19 A. Actuary.

20 Q. Actuary.

21 A. Yes.

22 Q. And that was -- where did you live during
23 that time period?

24 A. Most of it in -- well, in the beginning of
25 that time period, in San Francisco, but most of it in

1 Ohio, in Columbus, Ohio.

2 Q. Okay. And then you made your way to
3 Stanford?

4 A. Yes.

5 Q. Okay. And so what was the exact year that
6 you moved -- or that you began your studies at
7 Stanford?

8 A. 1975.

9 Q. Okay. So 1975.

10 MS. ABSTON: I think we need to go off the
11 record for some technology issues, so...

12 THE WITNESS: All right.

13 THE VIDEOGRAPHER: The time is 9:13 Pacific
14 Time. We are going off the record.

15 (Off the record.)

16 THE VIDEOGRAPHER: The time is 9:16 a.m.
17 Pacific Time. We are back on the record.

18 BY MS. ABSTON:

19 Q. Okay, Dr. Milgrom. I think we left off and
20 we were talking about 1975, you had moved to Stanford
21 and started your studies; is that correct?

22 A. That's correct.

23 Q. Okay. And then in 1970 -- or, well, when
24 did you graduate from Stanford for the first time?

25 A. Okay. I got my first degree from Stanford

1 in 1978. That's the master's in statistics.

2 Q. Okay. And then what did you do after 1978?

3 A. I was still a student at Stanford. That was
4 just sort of a marker, which is why I didn't call it
5 graduation.

6 Q. Okay.

7 A. That was -- that was -- I earned that
8 en route to earning my Ph.D.

9 Q. Okay. And you graduated with your Ph.D. in
10 business in January of 1979; is that correct?

11 A. Yes, mm-hmm.

12 Q. And what was the title of your dissertation?

13 A. "The Role of Information in Competitive
14 Bidding," I think was the title, if I recall
15 correctly.

16 Q. Okay. We're going to circle back to that a
17 little bit later.

18 But I want to talk to you a little bit more
19 about your "Employment" section here that is on page
20 452 of Exhibit 1.

21 Do you see that?

22 A. Yes, I do.

23 Q. Have you ever worked outside academia?

24 A. Yes. This probably should have been marked
25 "Academic Employment." But, yes, I worked -- from

1 1970 to 1975, I worked as an actuary. And then, of
2 course, I had various little jobs while I helped pay
3 my way through college, which I wouldn't normally
4 include here.

5 Q. Okay. So we're going to correct that to say
6 "Academic Employment" here.

7 A. Yes.

8 Q. So have you had a job outside academia since
9 1975?

10 A. Since 1975, no, I've been employed entirely
11 as shown here.

12 Q. Okay. And it looks like after you received
13 your Ph.D. in California, you moved back to the
14 Central Time Zone; is that correct?

15 A. Yeah, to -- to Illinois, yes.

16 Q. Okay. And what drew you back to Illinois?

17 A. I was a professor at Northwestern
18 University, or an assistant professor initially at
19 Northwestern University.

20 Q. And that was in the Kellogg Graduate School
21 of Management?

22 A. That's correct.

23 Q. And what classes did you teach during that
24 time?

25 A. Oh, Introductory Economics. This was in the

1 management of -- Managerial Economics and Decision
2 Sciences Group at the -- at the university, and I
3 taught some groups that were related to operations
4 research methods. I can't quite -- quite remember
5 the course titles. But linear programming, inventory
6 theory, that sort of thing.

7 Q. And then in 1982, you became a visiting
8 professor at Yale; is that correct?

9 A. Yes.

10 Q. Okay. And was that a full-time position?

11 A. Yes.

12 Q. And what classes did you teach at Yale?

13 A. Similar classes, although more. So I also
14 taught Introductory Economics. I also taught some of
15 these operations research-related classes. And I
16 taught, to advanced graduate students there, some
17 research classes on the emerging topic then of
18 information economics.

19 Q. And what prompted you to leave Silicon
20 Valley in the first place, other than your job
21 position at Northwestern?

22 A. Well, I was a student there. I wasn't -- I
23 didn't think of myself as being in Silicon Valley in
24 1975. I was a student at Stanford. And when you
25 graduate, the -- at the time, what we thought the

1 most prestigious thing to do with the expectation was
2 that you would seek a job as a university professor.
3 That's what I had trained to do.

4 So I interviewed for jobs as a university
5 professor, and the best offer I had -- as best I can
6 remember, the best offer I had was from Northwestern,
7 or I considered it the best offer, and so I went
8 there.

9 Q. When you were graduating from the University
10 of Michigan and looking to further your degree, did
11 you evaluate other universities other than Stanford?

12 A. Yes.

13 Q. What were the other universities that you
14 considered?

15 A. Well, I was admitted to both Stanford and
16 Harvard, and I chose Stanford.

17 Q. And why did you choose Stanford?

18 A. I had a love for the West Coast. I wanted
19 to get out there and -- somewhere that wasn't so
20 cold.

21 Q. Okay. Understandable.

22 A. Uh-huh.

23 Q. Understandable.

24 Okay. So I want to go back to talking about
25 the 1980s.

1 So in 1983, you transitioned to a full-time
2 position at Yale University as the professor of
3 economics and management; is that correct?

4 A. I see that up there now. Okay. Can I pull
5 this closer --

6 Q. Sure.

7 A. -- see what I'm looking at.

8 Yes, so it appears that I had accepted their
9 full-time offer then and began that position in 1983,
10 yes.

11 Q. Okay. And then -- and we're continuing to
12 walk through Exhibit 1, which is your CV. So I think
13 you have that pulled up in front of you now on the
14 screen.

15 A. Yes.

16 Q. But I think we're walking through -- let's
17 see, on page 450 -- 453.

18 A. Yep.

19 Q. Okay. And then two years later, in 1985,
20 you became the Williams Brother professor of
21 management studies and professor of economics at
22 Yale; is that correct?

23 A. Yes.

24 Q. Okay. And then -- but you leave Yale in
25 1987; is that right?

1 A. Yes. Yep.

2 Q. And what prompted you to leave Yale?

3 A. I had an offer from -- I had offers from
4 U.C. Berkeley and from Stanford, and I negotiated
5 with them and with Yale, and decided it was best for
6 me and my family to -- my young family at the time,
7 that it was best for us to live at Stanford. So I
8 moved to Stanford.

9 Q. And when you moved -- when you returned to
10 Sanford, you returned as the director at the Stanford
11 Institute of Theoretical Economics?

12 A. That was two years later, as you see.

13 Q. Okay.

14 A. That's sort of a -- they are sort of out of
15 order, perhaps. I consider that out of order.

16 Q. Okay.

17 A. I moved as a professor of economics.

18 Q. Oh, okay. So just to clarify it, when you
19 left Yale in 1987, you started at Stanford in what
20 position?

21 A. As a professor of economics and a professor
22 by courtesy that year at the Graduate School of
23 Business. Yep.

24 Q. Okay. And then you became the director at
25 the Stanford Institute of Theoretical Economics?

1 A. Yes. I was the founding director of that
2 institute. Uh-huh.

3 Q. Okay. And so since 1987, you've worked
4 full-time at Stanford; is that correct?

5 A. Yes.

6 Q. And you've resided in the Palo Alto/Stanford
7 area full-time since 1987?

8 A. Well, I had a couple of visiting positions
9 during that period. Let's see. The -- I think --
10 are my visiting positions discussed here?

11 Q. I believe some of your visiting positions
12 are mentioned throughout, so -- but let's walk
13 through them.

14 Do you recall specific visiting positions --

15 A. Yeah, I was --

16 Q. -- that you've held since 19 -- the 1980s?

17 A. Yes. Let's see. I think it was in 2000,
18 Harvard invited me to come spend a year as a Taussig
19 visiting professor of economics at Harvard
20 University, and it was a nice position. You know,
21 they just -- they paid me just to be there. I didn't
22 have any responsibilities other than to show up. So
23 I spent the year at Harvard.

24 And then the next year I got an offer
25 from -- a permanent offer from MIT, and I ended up

1 going there as a visitor for a year in 2001-2002, and
2 while Stanford was putting together its counteroffer,
3 and managed to draw me back in 2002.

4 Q. So the two specific visiting professor
5 opportunities that you recall right now is in 2000
6 you were at Harvard, and then in 2001 you were at
7 MIT?

8 A. That's correct.

9 Q. And so did you have any responsibilities
10 when you were a visiting professor at MIT in 2001?

11 A. Yes. I taught -- well, I was there and I
12 engaged in teaching the research. I had some
13 teaching there.

14 Q. Okay. So is it fair to say between 1980 and
15 1990, you were full-time in academia?

16 A. Between 1980 and 1990, yes, I was full-time
17 in academia.

18 Q. Okay.

19 A. I'm considered full-time still.

20 Q. And then you've been a professor at a few
21 different departments at Stanford; right?

22 A. Well, I have these courtesy appointments in
23 other departments at Stanford.

24 Q. What are those departments?

25 A. At the Graduate School of Business and in

1 the engineering school, the Department of Management
2 Science and Engineering.

3 Q. And are you teaching -- have you taught --
4 strike that.

5 Have you taught every semester since 1987?

6 A. Well, we're on a quarter system at Stanford.

7 Q. Okay.

8 A. And have I taught every quarter? No.

9 Q. Are you teaching classes this semester?

10 A. This quarter.

11 Q. This quarter. Are you teaching classes this
12 quarter?

13 A. In the fall quarter, I am not teaching
14 classes.

15 Q. Okay. When was the last quarter that you
16 taught classes?

17 A. In the spring of last year.

18 Q. And what class did you teach?

19 A. It was a class on -- an undergraduate class,
20 Economics 136. The subject was market design.

21 Q. And have you taught classes in antitrust?

22 A. No.

23 Q. Have you ever taught classes related to the
24 Deceptive Trade Practices Act?

25 A. No.

1 Q. Do you anticipate teaching next semester?

2 A. Yes. Next quarter.

3 Q. Next quarter. And so your income between
4 1980 and 1990, when you were working in academia,
5 primarily came from your academic appointments or
6 positions; is that correct?

7 A. Yes.

8 Q. And I want to flip to your CV. We're going
9 to hop around a little bit, if that's okay. But I
10 want to flip to your "Honors, Awards, Prizes,
11 Fellowships, and Grants" section, which I think
12 begins on page 453.

13 Do you see that?

14 A. Yes.

15 Q. And when you submitted your report, was this
16 an accurate representation of all grants you had
17 received since 1974?

18 A. I believe so, yes.

19 Q. And is this section still accurate?

20 A. I don't think that there's anything to add
21 to this since -- since -- I think the last new honor
22 was the honorary doctorate at Charles University in
23 the summer of 2024.

24 Q. Okay. But specifically pertaining to
25 grants, this section, you believe it is still

1 accurate?

2 A. Grants. Do I have any other grants? I have
3 no other grants since that period of time.

4 Q. And does this list include any grant work
5 that you may have supervised throughout the course of
6 your academic career?

7 A. I'm not sure I understand the question.

8 Q. Okay. Have you ever personally received any
9 grants that had a connection to Google?

10 A. Grants that had a connection to Google, no.

11 Q. Have any of your academic departments in
12 which you were employed ever received a grant from
13 Google?

14 A. I wouldn't know. None that I'm aware of.

15 Q. Okay. And has Google ever funded any of the
16 Stanford departments that you're involved in?

17 A. Funded the departments? I am not aware of
18 them funding any of the departments, no.

19 Q. To your knowledge, have they contributed
20 funds towards any of Stanford's departments?

21 A. To my knowledge, "contributed funds
22 towards," that's too vague for me to understand
23 exactly what that -- what you mean by that.

24 Q. So you're unaware if Google has ever
25 contributed financially to any of the departments at

1 Stanford in which you've been involved?

2 MR. EWALT: Objection to form.

3 THE WITNESS: I am not aware of Google ever
4 having made a contribution to one of the departments
5 that I was involved in. You know, I -- the Graduate
6 School of Business, I have very little knowledge of
7 what might be going on over there, so I really
8 wouldn't know. I'm close at the economics
9 department, and I think I would know. I'm not aware
10 of any grants there.

11 BY MS. ABSTON:

12 Q. Okay. And do you have any plans to retire
13 soon?

14 A. I do not.

15 Q. Okay. I want to keep walking through your
16 CV.

17 A. Uh-huh.

18 Q. So let's look at your "Publications" section
19 here.

20 A. Uh-huh.

21 Q. I believe your "Publications" section starts
22 on page 457 of Exhibit 1.

23 Do you see that?

24 A. Yes, that appears to be correct. Uh-huh.

25 Q. And do you see the top where it says

1 "Publications," and then it looks like there's a
2 subheader that says "Articles."

3 A. Yes.

4 Q. Do you see that?

5 A. Uh-huh.

6 Q. And when you submitted your report, this is
7 an accurate representation of all the articles you
8 had published at that time?

9 A. I believe so, yes.

10 Q. Okay. But we do note that we're going to
11 walk through, hopefully, your most recent CV that may
12 have some adjustments to the "Articles" section?

13 A. It may. There has been at least one article
14 that's mentioned as a working paper here that has
15 been published in the meantime.

16 Q. Okay. And then if we continue looking
17 through this section here, I think there's a
18 subheader that says, "Books."

19 A. Uh-huh.

20 Q. Have you published any books since you
21 issued your report on July 30th, 2024?

22 A. It sometimes feels like the report was a
23 book. But, no, these are the books.

24 Q. Okay. So looking at page 465 of Exhibit 1,
25 we have two books listed here.

1 A. Uh-huh.

2 Q. And then it looks like there's a subheading
3 that says, "Contribution to Books and Proceedings."
4 Do you see that?

5 A. Yes. At the same level as "Articles" and
6 "Books" is "Contributions to Books and Proceedings."

7 Q. Okay. So were you the sole author of --
8 let's see -- "Discovering Prices: Auction Design in
9 Markets with Complex Constraints"?

10 A. Yes.

11 Q. Okay. And that book was published in 2017;
12 correct?

13 A. Yes.

14 Q. And were you the sole author of "Putting
15 Auction Theory to Work" published in 2004?

16 A. Yes.

17 Q. And so let's move -- strike that.
18 We have talked a little bit about the
19 "Contributions to Books and Proceedings" section.

20 Do you see that?

21 A. I see the subheading, yep.

22 Q. And this was after you submitted your report
23 on July 30th?

24 A. To the best of my knowledge, yes.

25 Q. Okay. Moving on from that section, I

1 believe the next section is a subheader called
2 "Patents."

3 Do you see that?

4 A. I do.

5 Q. And how many patents have you been
6 associated with throughout your career?

7 A. I'd have to count them. Just a moment.
8 There are ten listed here.

9 Q. Okay. So when you submitted your report, it
10 was an accurate representation of all ten patents
11 associated with your name?

12 A. To the best of my knowledge, yes.

13 Q. Okay. And this is still an accurate
14 section?

15 A. Yes. There's been no new patents.

16 Q. Okay. I'm going to come back to that a
17 little bit later, then.

18 The rest of your CV, I believe, includes
19 subheadings like "Others." And then I want to --
20 let's flip to the subheader called, "Working
21 Papers" --

22 A. Yes.

23 Q. -- on page 470. You said this may be a
24 place we need to make a correction; is that right?

25 A. Yes. Let's see. Well, the -- it looks like

1 just one.

2 Q. Okay. What's the correction?

3 A. Kenneth Arrow's "Last Theorem," May '24.
4 Well, it's now accepted for publication, possibly
5 published at this point.

6 Q. Okay. And then flipping back to the
7 beginning of your CV to the section called, "Honors,
8 Awards, Prizes, Fellowships, and Grants," on page
9 453.

10 A. Yep.

11 Q. Let me know when you're there.

12 A. I'm there.

13 Q. When you submitted this -- when you
14 submitted your report, this was an accurate
15 representation of all your honors, awards, prizes,
16 and fellowships since 1974; is that correct?

17 A. Grants and fellowships, yes. To the best of
18 my knowledge, this was complete and correct.

19 Q. And this section is still accurate?

20 A. There's been no changes in that.

21 MS. ABSTON: Okay. Okay. I want to circle
22 back to your dissertation, which we're going to mark
23 as Exhibit 2.

24 (Exhibit No. 2 was marked.)

25 ///

1 BY MS. ABSTON:

2 Q. And I believe you testified that your
3 dissertation was presented in 1978; right?

4 A. Something like that.

5 MS. ABSTON: I would like to mark what is
6 your dissertation entitled, "The Structure of
7 Information and Competitive Bidding" as Exhibit 2.

8 THE WITNESS: Okay.

9 BY MS. ABSTON:

10 Q. Do you recognize this document?

11 A. It looks familiar, yes.

12 Q. Okay. And did you write this document?

13 A. Yes.

14 Q. Okay. Do you know the exact date that you
15 wrote this document?

16 A. Well, it says -- it's dated on the front of
17 it October 1978. So it was written in the period
18 preceding that.

19 Q. Okay. And how have you defined "competitive
20 bidding"?

21 A. In this document?

22 Q. Yes. How have you confined -- how have you
23 defined "competitive bidding" in this document?

24 A. Well, I would have to take a look in here
25 and see if it's defined at all. Do you have a

1 reference in mind in here?

2 Q. We can just move on.

3 Are the economic principles outlined in your
4 1978 dissertation still applied within auction -- the
5 auction theory field?

6 A. I haven't reviewed this dissertation in two
7 decades or so, so I don't remember well enough to be
8 able to -- to be able to answer that question.

9 Q. Okay. When was the last time that you think
10 that you read through your dissertation?

11 A. It must be at least 20 years.

12 Q. Okay. And have you applied auction theory
13 principles discussed within your 1978 dissertation
14 within your various Google expert reports?

15 A. Again, I -- I'm not very clear about what is
16 in this dissertation anymore. I haven't looked at it
17 in decades. So whether the same principles are
18 applied or not, I would be unable to tell you as I
19 sit here.

20 Q. Okay. Have you used the auction theory --
21 or strike that.

22 Have you used the auction theory principles
23 discussed within your 1978 dissertation to form any
24 of your opinions mentioned in your July 30th report?

25 A. My previous answer still applies.

1 Q. How do you believe that the developed study
2 of the properties of two-sided auctions has impacted
3 modern price theories?

4 A. Oh, goodness. That's a very broad question.
5 Can we narrow it down a little bit?

6 Q. Are you able to speak to any sort of
7 development of the study of properties of two-sided
8 auctions and their impacts on modern price theories?

9 A. Yeah. I am.

10 Q. Could you further explain that?

11 A. Well, in two-sided auctions, the formal
12 modeling of two-sided auctions has helped us come to
13 understand something about how information that is
14 privately held by individuals comes to be reflected
15 in prices.

16 It's told us something about the rates of
17 convergence of small markets, their structure to
18 perfectly -- the theoretical ideal of perfectly
19 competitive markets.

20 It's just given us a window generally on --
21 in traditional price theory before the development of
22 auction theory, people would draw a supply curve and
23 a demand curve and say somehow magically at the point
24 where the supply and demand curve intersect -- I'm
25 sorry, I shouldn't be using my hands here -- okay.

1 At the point where the supply and demand curve
2 intersect, there's a price and there's a quantity,
3 and somehow that happens.

4 And what auction theory and two-sided
5 auction theory do is they dig down into the process
6 and see how it affects what happens when you're short
7 of competition, how private information affects
8 prices and so on.

9 Q. Okay. And did you use the economic
10 principles outlined in your 1978 dissertation within
11 your work with the United States Federal
12 Communications Commission?

13 A. It actually was very little of what I was
14 doing in my dissertation that was directly relevant
15 to the work for the Federal Communications
16 Commission. Very little, if anything.

17 Q. And what aspects did apply, if any, to your
18 work with the Federal Communications Commission?

19 A. It would have been issues about framing;
20 that is, it would have been issues about the idea
21 that people have private information about what
22 things are worth to them; that they respond to
23 incentives in their behavior. They are very general,
24 high-level principles.

25 Q. Let's talk a little bit more about your

1 agency-related work. Does that sound okay?

2 A. Sure.

3 Q. Have you ever worked for a United States
4 governmental agency?

5 A. Oh, the agency. That sense of agency.
6 Pardon me. I am just confused about that
7 introduction.

8 I worked for -- well, my company,
9 Auctionomics, has worked for the U.S. Federal
10 Communications Commission.

11 Q. Have you ever personally worked for the U.S.
12 Federal Communications Commission, outside of
13 Auctionomics?

14 A. I have not been employed by them, and I have
15 not had an individual contract with them.

16 Q. Okay. So the FCC contracted with
17 Auctionomics for -- strike that.

18 When did the FCC contract with Auctionomics,
19 your company?

20 A. For the work on the incentive auction, I
21 believe that started in 2011, as I recall.

22 Q. Okay. So did you ever work with the FCC
23 prior to 2011?

24 A. Well, worked with the FCC but not -- not for
25 the FCC prior to 2011.

1 Q. When was the first time that you worked
2 with -- strike that.

3 When was the first time that you worked with
4 the FCC?

5 A. I met with them for the first time in 1993,
6 probably. I think -- yes, 1993.

7 Q. And what was the subject matter of that
8 meeting?

9 A. The very first radio spectrum auctions in
10 the United States.

11 Q. And so that was the first time that you ever
12 had any interaction with the FCC?

13 A. I believe so, yes.

14 Q. And how did you originally get connected
15 with them, with the FCC, sir?

16 A. Well, I had been hired by what was then
17 Pacific Bell to advise them on how auctions should
18 take place for radio spectrum.

19 And -- and they put me in -- I attended
20 together with their chief lobbyist when we went and
21 visited the FCC in Washington to speak about how
22 the -- the auction should be designed.

23 Q. And when was Auctionomics formed as a
24 company?

25 A. Oh, what was the first year? I think it was

1 around 2010. I just -- I'm sorry, I don't remember
2 exactly.

3 Q. Okay. And so you didn't do any work with
4 the FCC in the 1980s?

5 A. "Didn't do any work with the FCC in the
6 1980s." Oh, in the 1980s. No, I did not.

7 Q. Okay. And could you clarify on the record
8 what the dates of your first -- strike that.

9 What were the dates you were first involved
10 with the FCC on the specific project that you were
11 just discussing?

12 A. I talked about more than one project. I'm
13 sorry.

14 Q. That's okay. For your first ever project
15 with the FCC --

16 A. First --

17 Q. -- what was your start date?

18 A. Okay. So this is the project that I had
19 with Pacific Bell we're talking about now. And --
20 let's see. The relevant legislation passed in July
21 of 1993, and so I was probably -- I'm going to -- I
22 can't guess the exact date, but September 1993 would
23 have been about the first time I spoke to the FCC.

24 Q. Okay. And was Pacific Bell your first hire
25 by a commercial company for consulting relating to

1 auctions?

2 A. "For consulting relating to auctions." It
3 may have been. I don't recall an earlier one.

4 Q. And what aspects of auction theory did your
5 work with the FCC pertain to in September of 1993?

6 A. "Aspects of auction theory." Well, it --
7 the challenge that the FCC had was how to design an
8 auction that would sell -- or a series of auctions,
9 actually; there have been many auctions now -- to
10 sell radio spectrum.

11 When the radio -- the licenses to use radio
12 spectrum -- I mean to be more precise -- when those
13 licenses were interrelated, some as substitutes and
14 some as complements, it was a new subject in auction
15 theory, one that had not been much researched in
16 academia, and they needed new solutions.

17 Q. And I believe that that work with the FCC
18 resulted in creation of what some deemed the greatest
19 auction in history; is that right?

20 A. I think that was the William Safire article
21 had that title, "Greatest Auction in History," yes.

22 Q. And that article was published in the "New
23 York Times"?

24 A. Yes.

25 Q. And would you consider your work with the

1 FCC to be your greatest contribution to auction
2 theory?

3 A. No.

4 Q. What would you consider to be your greatest
5 contribution to auction theory?

6 A. Okay. I'm -- I'm sorry. I was answering
7 that with respect to the 1983 work we were speaking
8 of.

9 Actually, I do think that my -- my greatest
10 work in auction theory was an FCC project, the one
11 that began in 2000 -- 2011, the so-called broadcast
12 incentive auction.

13 Q. And let's walk through a little bit of a
14 timeline so that I can make that sure I follow you.

15 A. Uh-huh.

16 Q. The first time that you worked with the FCC
17 was in September of 1993?

18 A. Yes.

19 Q. And that was on the radio spectrum project
20 that you've described here --

21 A. Yes.

22 Q. -- is that correct?

23 A. Yep.

24 Q. When was the next time that you worked with
25 the FCC?

1 A. Oh, I've been in contact with them on and
2 off ever since, so I -- I don't think I can highlight
3 dates for you.

4 Q. So -- but there were various projects in
5 between, let's say, 1995 and the 2011 broadcast
6 incentive auction FCC project?

7 A. Yeah, the -- the broadcast incentive auction
8 was an FCC project. It was a project I did for the
9 FCC.

10 And in between, I had become quite friendly
11 with some of the staff at the Federal Communications
12 Commission, and sometimes they would informally call
13 me for advice. That was sort of noncommercial. I
14 was -- pro bono work, if you will, where I would give
15 my advice about how to deal with certain issues that
16 the FCC faced.

17 Q. Okay. Could you estimate how many times you
18 had formal projects with the FCC in between 1995 and
19 2011?

20 A. "Formal projects" meaning something that --
21 if it was something where the FCC paid me, the answer
22 is very simple: zero. It was nothing that I was
23 paid by the FCC in that period; in fact, at any time
24 before 2011.

25 Q. Okay. So between 1995 and 2011, any time

1 you heard from the FCC, it was more of an informal,
2 pro bono type of advice question?

3 A. Yes, or else I was representing somebody
4 else in talking to the FCC. Yes.

5 Q. And have -- so let's talk a little bit about
6 your 2011 project.

7 A. Sure.

8 Q. When did you first begin that project in
9 2011?

10 A. In 2011. Are you asking a date? Month? I
11 can't tell you.

12 Q. What month did you begin your project with
13 the FCC in 2011?

14 A. I don't recall.

15 Q. Okay. And was Auctionomics also involved in
16 this project with the FCC in 2011?

17 A. By the time I had a contract, it was
18 Auctionomics, yes.

19 Q. Okay. So the FCC contracted directly with
20 Auctionomics for that project?

21 A. Actually, no. This was complicated. The
22 FCC -- yeah. No. You can ask more questions if
23 you'd like to know.

24 Q. Why was that -- why was your contractual
25 situation with the FCC complicated at the time?

1 A. Well, the FCC -- this was the most difficult
2 auction project in history ever, in any application,
3 and the FCC reached out to me and said, Can you do
4 this? They said they wanted to hire me, but due to
5 federal contracting regulations, they couldn't just
6 hire me. They had to -- they had to find a way to
7 hire me.

8 And they asked me how I felt about being a
9 subcontractor to a service-disabled veteran, with
10 whom they could contract directly. And so they were
11 the midwife, if you will, in an arrangement between
12 me and a -- and a service-disabled veteran-owned
13 company, which was their direct contractor. And then
14 I was the subcontractor to that company.

15 Q. And at that time how many employees did
16 Auctionomics have?

17 A. Auctionomics mostly doesn't have employees.
18 Mostly we work with contractors. It's project-based.
19 And at that time probably just one, Silvia, my --
20 probably just one.

21 Q. And who is Silvia?

22 A. Silvia Console Battilana is the CEO of
23 Auctionomics.

24 Q. And in 2011, what was your position with
25 Auctionomics?

1 A. I was the co-owner.

2 Q. Okay. So you received your payment through
3 industry?

4 MR. EWALT: Objection. Form.

5 THE WITNESS: I don't understand the
6 question.

7 BY MS. ABSTON:

8 Q. Okay. Do you believe that the auction
9 mechanics for the FCC auction in 2011 are the
10 equivalent to the mechanics used in Google AdX
11 auctions that you evaluated within the EDTX case?

12 A. Equivalent in what way? They are very
13 different. The problems are different. The auctions
14 are tailored to different problems, and they have
15 many, many differences.

16 Q. Okay. Let's continue talking about
17 Auctionomics.

18 A. Uh-huh.

19 Q. Prior to the formation of Auctionomics, did
20 you ever have any sort of company that assisted you
21 with your work or that contracted with you?

22 A. Yes.

23 Q. What were -- what was the company that
24 preceded Auctionomics?

25 A. That immediately preceded Auctionomics?

1 That -- that -- again, it's a complex contractual
2 arrangements. But the company that I owned that
3 immediately preceded Auctionomics was called
4 Xonomic -- Xonomic or Xonomics -- and was the
5 immediately preceding company.

6 Q. And when was that company formed?

7 A. Just a couple of years earlier. I will
8 guess -- I don't remember exactly which year.

9 Q. Okay. Would it be 2010 or earlier like
10 2005?

11 A. No. You know, if I were guessing, I would
12 probably guess 2009, something like that.

13 Q. And were there any other employees of that
14 company?

15 A. Yes.

16 Q. And who are those employees of --

17 A. So my partner there was David Salant; and
18 Silvia, who I described already, was -- worked there;
19 and Steven Goldband, I recall, worked there. That's
20 all I remember at this time.

21 Q. Okay. Prior to the formation of this
22 company in 2009, was there a company that preceded
23 that?

24 A. I had individual arrangements, I think, at
25 that time. For the period before then, my

1 arrangement was primarily with Charles River
2 Associates.

3 Q. And what is Charles River Associates?

4 A. It is an economic consulting firm.

5 Q. Do they also do litigation work?

6 A. They do.

7 Q. Okay. Did you engage in litigation work
8 with Charles River Associates?

9 A. Yes.

10 Q. And what year did you join Charles River
11 Associates?

12 A. I began working with Charles River -- what
13 year would it have been? So there's, again, a fair
14 amount of guesswork that goes into this. But I would
15 think that the first year would have been something
16 like 1996 or something about then.

17 Q. Okay. So while you were working in
18 academia, you were also engaged in litigation work
19 with Charles Rivers in 1996?

20 MR. EWALT: Objection to form.

21 THE WITNESS: I was engaged in occasional
22 projects with Charles -- with Charles River
23 Associates then, yes.

24 BY MS. ABSTON:

25 Q. Okay. How many projects would you say you

1 were engaged with him on?

2 A. Over that whole period of years?

3 Q. Yes.

4 A. Hmm. I don't know. Maybe four or five over
5 that period.

6 Q. And were those CRA projects related to this
7 litigation in any way?

8 A. No.

9 Q. So you began working with CRA in 1996. When
10 did you stop working with CRA?

11 A. About the time I founded Xonomic.

12 Q. Xonomic. Okay.

13 So you worked with CRA from approximately
14 1996 to 2009?

15 A. Something like that, yeah.

16 Q. And over the course of your work with them,
17 you worked on four to five different types of
18 projects?

19 A. That's a guess, but something like that. A
20 small number.

21 Q. And that -- and that four to five number
22 includes times you were providing economic
23 consultations and litigation-related consultations?

24 A. Yes.

25 Q. How many of those CRA projects during that

1 time period were litigation-related projects?

2 A. Well, again, these are -- the best I can do
3 is estimate. Is that what you want, is estimates?

4 Q. If you had to give your best estimate for
5 how many of your CRA projects between 1996 and 2009
6 were litigation-related, what would it be?

7 A. Two or three.

8 Q. And are you currently still the chairman and
9 co-founder of Auctionomics as of today?

10 A. Yes.

11 Q. Okay. And let me pop back one second.

12 Prior to working with Charles River in 1996,
13 were you a part of any sort of company related to
14 economic consulting or litigation consulting?

15 A. No.

16 Q. So Charles River was the first time you were
17 involved in any sort of consulting group?

18 A. Well -- no, actually, that isn't quite
19 right. I'm sorry, that's a mistake.

20 Q. Okay.

21 A. Let's see. I'm straining my memory here.

22 Q. I believe in 1996 you were in California, I
23 think. Let's go back to your CV.

24 A. Yes, I was in California. And I'm not sure
25 if Market Design is mentioned here. It's sort of a

1 company.

2 Q. Okay.

3 A. There's a company called Market Design that
4 I put together in -- around 1995.

5 Q. Okay.

6 A. It wasn't really -- didn't have any
7 contracts at all. It was really just a network of
8 auction consultants, others who had been -- other
9 professors who had been drawn into using economics
10 for auction consulting. And we figured we had worked
11 out better methods to run some of the kinds of
12 auctions that were used in the world, and this was a
13 network to sort of direct projects among ourselves.

14 So there were a variety of projects that
15 came in through Market Design, Incorporated. Was it
16 a commercial arrangement? I don't know. I mean,
17 maybe legally it was. But there was no actual money
18 running through Auctionomics -- or through Market
19 Design, Incorporated.

20 Q. So you received no revenue from Market
21 Design, Incorporated?

22 A. Nobody received any revenue directly from
23 Market Design, Incorporated. Well, that's not quite
24 right either. Very little, I should say.

25 Q. Okay. What do you consider to be "very

1 little" revenue?

2 A. You know, I really don't -- I didn't
3 charge a -- bill a single hour through any project of
4 Market Design. Some people did, and then there was a
5 small amount of profits that were shared. But I
6 don't remember the numbers.

7 Q. So who were the other consultants involved
8 in Market Design, Incorporated?

9 A. Let's see. Robert Wilson, who I also don't
10 think had any revenue from -- who was a professor at
11 Stanford and another Nobel laureate.

12 John McMillan, who is another professor.
13 Preston McAfee, Peter Cramton, and Lawrence Ausubel.
14 That was the group.

15 Q. And so some of those auction consultants may
16 have billed or received revenues from Market Design,
17 Incorporated?

18 A. Yes, I think -- yes.

19 Q. And did you bill independently during that
20 time period for auction consulting?

21 A. Did I personally? Is that "you" as a
22 singular you?

23 Q. Yes.

24 Did you personally, in 1995, bill for your
25 auction consulting services?

1 A. If I had had any then, I would have billed
2 for them personally, yes.

3 Q. Do you believe that you had auction
4 consulting services projects in 1995?

5 A. I think I did not in 1995.

6 Q. When do you think your first time -- was the
7 first time that you ever provided auction consulting
8 services?

9 A. Separate from the 1993, which we've already
10 talked about?

11 Q. Uh-huh. When was the first time you ever
12 provided --

13 A. Well, the first auction services I provided
14 were to Pacific Bell in 1993.

15 Q. Okay. And prior to 1993, you didn't have
16 any commercial projects where you billed
17 independently?

18 A. No.

19 Q. Okay.

20 A. Not that I recall.

21 Q. And then are you familiar with a company
22 called Efficient Auctions LLC?

23 A. Yes, I think that's Larry Ausubel's company.

24 Q. So you didn't -- what role do you have with
25 Efficient Auctions LLC?

1 A. If I'm remembering right that that's
2 Lawrence Ausubel's company, then we had sometimes
3 worked together. They were -- they provided some of
4 the software we used in connection with the
5 broadcasting incentive auction.

6 Q. Are you familiar with the company -- or
7 strike that.

8 Are you familiar with Perfect Commerce LLC?

9 A. Yes.

10 Q. How are you familiar with that company?

11 A. So Perfect Commerce. Yeah, that was Marc
12 Porat's company.

13 So in 1999, if I'm right, or thereabouts --
14 maybe it was 1998 -- but around 1998/1999, I was
15 approached. It was a -- it was a Silicon Valley
16 startup, and I was asked to participate in that.

17 And, you know, I would show up occasionally
18 for them. I got some shares. I don't believe I ever
19 received a penny in revenue from them, however.

20 Q. Did you ever receive any sort of revenue
21 from Efficient Auctions LLC?

22 A. I didn't work for Efficient Auctions LLC,
23 just worked with them on -- on the broadcasting
24 incentive auction project.

25 Q. Did you ever work with Auction Technologies

1 LLC?

2 A. Yes. Auction Technologies LLC, that was --
3 right. Auction Technologies, that's the -- the David
4 Salant company in -- also in the late '90s, and David
5 Salant I worked with.

6 And that was in connection -- I think that
7 was the contracting entity for some auctions that we
8 worked on with Vodafone, which was bidding in
9 auctions around the world. And I probably received
10 some revenue through that, yes. I may -- I may have
11 even had an ownership interest in that. I have
12 forgotten what the arrangements were.

13 Q. And you said that was founded in the late
14 '90s?

15 A. Yeah, if I'm recalling correctly which
16 company is which, yes, that would have been founded
17 in the late '90s.

18 Q. And did you ever realize any income from the
19 shares you were given in Perfect Commerce LLC?

20 A. I think not. I think the answer is no.

21 Q. Does Auctionomics have a board of directors?

22 A. Yes.

23 Q. And who comprises the Auctionomics board of
24 directors?

25 A. Silvia and me.

1 Q. Has there ever been any other board of
2 directors?

3 A. No.

4 Q. Does Auctionomics have a board of advisors?

5 A. Yes.

6 Q. Who comprises the Auctionomics board of
7 advisors?

8 A. You would have to look on the website for
9 that. I don't recall offhand.

10 Q. Do you recall approximately how many people
11 comprise the board of advisors to Auctionomics?

12 A. I'm not sure if we still have a board of
13 advisors. We've had a board of advisors over the
14 years, and it would have been a handful of people;
15 four or five, maybe.

16 Q. So are you currently employed by
17 Auctionomics?

18 A. No. I'm a contractor for Auctionomics.

19 Q. Okay. And so what would be your official
20 job title at Auctionomics?

21 A. I'm the chairman.

22 Q. Has anyone from Google ever been a part of
23 your Auctionomics board of advisors?

24 A. Anyone from Google? I don't think so. I
25 don't think so.

1 Q. And there's never been anyone from Google
2 who was a member of Auctiononomics' board of directors?

3 A. The board of directors has been just Silvia
4 and me. The board of advisors, I don't know. I'm
5 pretty sure that nobody from Google has ever been on
6 the board of advisors.

7 Q. And are there multiple teams at
8 Auctiononomics?

9 A. Yeah. Well, we put together teams on a
10 project basis. So there's a group of people we work
11 with regularly, and there can be multiple teams.

12 Q. So you take professional engagements also
13 outside of Auctiononomics; is that correct?

14 A. I have some. Yes, I have.

15 Q. Okay. Are you currently engaged in
16 professional engagements outside of Auctiononomics?

17 A. No.

18 Q. When was the last time you were engaged in
19 professional engagements outside of Auctiononomics?

20 A. I -- this is hard. Just a moment. Let me
21 see. I'm trying to remember what's in and what's
22 out.

23 So the sometimes smaller engagements, I have
24 taken outside of Auctiononomics. Actually -- actually,
25 I think the last thing that I did would have been --

1 outside of Auctiononomics would have been just a little
2 pre-Covid -- it would have been pre-Covid, so maybe
3 2018, just guessing.

4 Q. And can you describe that engagement?

5 A. Yeah. That was -- that also involved
6 Google. And it was Woods vs. Google, which has
7 morphed. It's coming back to life, it appears. So I
8 will probably still be engaged in that.

9 Q. Okay. So in this case, are you -- strike
10 that.

11 Typically if you're retained as an expert
12 witness on any case, does your retention go through
13 Auctiononomics?

14 A. These days, yeah. My supporting team --
15 my -- my supporting team, at least, is from
16 Auctiononomics, and I use the Auctiononomics staff for
17 billing. Sometimes the engagement is done
18 separately, sometimes it's done through Auctiononomics,
19 depending on what's convenient in the situation.

20 Q. Is there a reason why Woods vs. Google
21 pre-Covid was done outside of Auctiononomics?

22 A. Yeah, Auctiononomics at the time had never
23 engaged in litigation work. The -- you know, the
24 main business of Auctiononomics is designing markets
25 and assisting participants. And this was outside the

1 kind of activity that Auctionomics was doing at that
2 time.

3 Q. Okay. So the first time that Auctionomics
4 ever engaged in litigation consulting was
5 approximately 2018; does that sound right?

6 A. That wasn't Auction- -- again, I'm saying
7 that was not Auctionomics. I think this is -- this
8 case -- this may be the first case that Auctionomics
9 has done that's a litigation support case.

10 Q. And by "this case," you mean the case in the
11 Eastern District of Texas that you're sitting here --

12 A. Yes.

13 Q. -- today for?

14 Do you know Auctionomics' total revenue for
15 2023 and 2024?

16 A. For 2023 -- no, I don't know those numbers.

17 Q. Do you know Auctionomics' total revenue for
18 2022?

19 A. No. I'm sorry, those numbers aren't at the
20 top of my head. No, I don't have the numbers handy.

21 Q. So you testified you're a contractor at
22 Auctionomics. Do you still retain an equity stake in
23 Auctionomics?

24 A. Yes.

25 Q. Okay. And you mentioned the Auctionomics

1 website. So if we wanted to find who was a member of
2 the board of advisors, we would go to the website to
3 locate those?

4 A. Yes. If we still have a board of advisors,
5 you would find it on the website.

6 Q. Okay. And on the website, do you also
7 include staff members or other independent
8 contractors that are associated with Auctionomics?

9 A. I haven't looked at the website in a long
10 time, so I am not entirely sure about that. I'm not
11 entirely sure about that.

12 Q. Okay. And is Auctionomics doing work on the
13 DOJ case?

14 A. Yes.

15 Q. Okay.

16 A. That's -- I'm sorry. What -- so we're --
17 right. So -- so that forces a correction in my
18 earlier statement that this -- this matter, in my
19 mind, the -- many of the same -- same readings and
20 same principles apply.

21 So the first case -- the first cases we were
22 engaged in are these cases, including the DOJ case
23 and the Texas case.

24 Q. Okay. Has Google ever compensated you for
25 your litigation work by giving you stock?

1 A. No.

2 Q. Has Google ever compensated you for any
3 nonlitigation work by giving you stock?

4 A. No.

5 Q. Is Auctionomics, to your knowledge,
6 supporting any other experts on this case?

7 A. No.

8 Q. Has Auctionomics, to your knowledge,
9 supported any other experts on any other cases?

10 A. No.

11 Q. So Auctionomics only provides litigation
12 support to you and when you are retained as an expert
13 witness?

14 A. Well, no, that's not a principle. It's just
15 since I -- these cases are our first -- first
16 litigation support cases.

17 Q. Okay. And what percentage of your equity
18 stake -- what is your percentage of your equity stake
19 in Auctionomics?

20 A. 50 percent.

21 Q. I want to talk a little bit about some of
22 the other active clients of Auctionomics.

23 A. Uh-huh.

24 Q. So I think it's best to break it down
25 between -- we discussed today the litigation-related

1 projects with Auctionomics; correct?

2 A. Uh-huh.

3 Q. But there are other projects that you
4 describe that Auctionomics is currently engaged in;
5 correct?

6 A. Auctionomics is currently engaged in other
7 projects. We only -- I only do one big project at a
8 time, so the -- so mostly this year this is the
9 project we have been working on.

10 Q. What was last year's big project?

11 A. The last year's big project was also the
12 Google -- the Google litigation.

13 Q. Okay. In 2022, what was your big project?

14 A. In 2022, I didn't have a -- I didn't have a
15 monster big project; I had a number of smaller
16 projects. I worked for Ofcom in the UK. I worked on
17 some bidder support. I don't recall. But I didn't
18 have a single big project, I think, in 2022.

19 Q. Do you know how many active clients
20 Auctionomics has for auction consulting-related work?

21 A. Prior to this case or right now? When are
22 we asking?

23 Q. Do we know how many active clients
24 Auctionomics has for auction consulting-related work
25 at this moment?

1 A. Right now we're not doing any -- this is --
2 this is consuming our -- yeah, our --

3 Q. Okay. When was the last time that
4 Auctionomics did any sort of auction consulting work?

5 A. Probably 2021, 2022, right in there.

6 Q. Okay. And what -- could you describe the
7 project that Auctionomics was involved in in 2021 or
8 2022?

9 A. They were related to plans to bid in radio
10 spectrum auctions.

11 And let's see. I think 2022 may have been
12 the last year of the C-band auction, possibly. Right
13 around then. I'm not sure I have the year correct.

14 But we were -- it was a \$85 million sale of
15 radio spectrum by a -- satellite companies that --
16 that had previously been licensed as satellite
17 companies that wound up being sold by the Federal
18 Communications Commission. And we worked for a
19 couple of years on designing and planning that sale
20 till it was -- as a private sale, but was taken over
21 by the government right around then. I don't
22 remember the exact year.

23 Q. Okay.

24 A. But that was our giant project, though, just
25 before.

1 Q. Okay. So in 2021 and 2022, you had that
2 giant project, and then there was a shift, and
3 Auctionomics focused with you on the Google
4 litigation; is that correct?

5 A. Once the -- yeah, that project was done, we
6 were open to taking another big project, and this
7 became the next giant project.

8 Q. Okay. And then prior to some of the
9 clients, or the active clients we're talking about
10 right now, who had been some of Auctionomics' other
11 clients?

12 A. Well, we, for many years, were a worldwide
13 consultant to Vodaphone, which was bidding in
14 auctions all around the world.

15 We -- I've had several projects, smaller
16 projects for Ofcom, which is the communications
17 regulator in the UK.

18 A project in -- I had a project in -- for
19 bidding, one of our most regular clients, we did --
20 oh, they were also engaged in 2022, was for up for
21 bidding in auctions in Canada. And that will be --
22 they will be our client again next year for the next
23 big auction in Canada.

24 I've had some work that I've done for -- for
25 the government of Mexico, Australia, on auctions that

1 they have run. Those are some of the other clients.

2 Q. Okay. Have you ever had any -- has

3 Auctionom- -- strike that.

4 Has Auctionomics ever had any other
5 technology client?

6 A. Besides Google, you mean something --
7 somebody besides --

8 Q. Has Auctionomics ever been retained by any
9 other sort of technology companies outside of Google?

10 A. Well, you know, I would have thought that
11 you would consider Vodaphone and, you know, maybe
12 Bell Canada and those in the telecom industries as
13 technology clients. Perhaps you would consider them
14 that way. I'm not sure what the boundary is of --
15 yeah.

16 Q. And so since you're the co-founder of
17 Auctionomics --

18 A. Uh-huh.

19 Q. -- would you have access to a full client
20 list of all of Auctionomics' clients since its
21 formation?

22 A. I'd have to dig it up somewhere. Yeah, I'm
23 sure I could probably just review my email
24 correspondence and find a full list. But I don't
25 have one.

1 Q. How many clients do you think that
2 Auctionomics has had since it was formed in 2011?

3 A. Oh, maybe ten, something like that.

4 Q. Okay. And that goes for every single
5 independent contractor that Auctionomics may engage;
6 is that correct?

7 MR. EWALT: Objection to form.

8 THE WITNESS: Yeah, I don't understand that
9 question either.

10 BY MS. ABSTON:

11 Q. Okay. So Auctionomics has only had ten
12 clients since 2011?

13 A. I'm guessing the number, but it's on that
14 order, yeah.

15 Q. Okay. But you can't recall specifically
16 what those -- what -- the names of those ten clients
17 at this time?

18 A. I have named a bunch of them for you --

19 Q. Okay.

20 A. -- so I'm not saying I can't remember
21 anything about any of their names.

22 Q. Okay.

23 A. I've named the ones that come to mind.

24 Q. Okay. And you can't think of any other
25 client that may be related to advertising technology?

1 A. Of clients of Auctionomics that relate to
2 advertising technology. I think, actually, one of
3 the projects that I did for OpenX -- OpenX was an ad
4 exchange, and some of that I did on my own, outside
5 of Auctionomics. Now, that -- as we speak that, I
6 now recall. And I think one of the projects for them
7 was done through Auctionomics.

8 Q. Okay. I want to come back to that.

9 So Auction- --

10 MR. EWALT: Excuse me, Counsel. We've been
11 going for an hour. Is this now a good breaking
12 point?

13 MS. ABSTON: I think we're almost done. Can
14 you give me five more minutes more?

15 MR. EWALT: Sure.

16 MS. ABSTON: Are you okay to go five more
17 minutes more?

18 THE WITNESS: I'm fine, sure.

19 MS. ABSTON: Okay. We will go whenever you
20 want to.

21 BY MS. ABSTON:

22 Q. Since 2011, Auctionomics has had ten
23 clients. But outside of that, you've also taken on
24 consulting roles and clients; is that correct?

25 A. Yeah, those are where I don't require any

1 support.

2 Q. And so you -- who have been your clients
3 that you've consulted with since 2011?

4 A. Well, I think I was done with Yahoo by then.
5 I'm not quite sure. I had Yahoo as a client for a
6 while. That might have been finished by then. I
7 don't recall the exact years.

8 I had OpenX as a client for several years.

9 I had mentioned the litigation support, the
10 one case. And as I sit here, those are the only
11 three that come to mind.

12 Q. Okay. And when did Google become -- strike
13 that.

14 When did Google first become Auctionomics'
15 client?

16 A. We're talking about this matter now, which
17 is the only time -- sorry. I didn't mean that to be
18 a question. I'm just -- I meant that -- I was
19 thinking aloud.

20 Q. I understand. Okay.

21 A. I think that this dates back two or three
22 years, that just shortly after this Texas case was
23 filed.

24 Q. Okay. So would you say that Google first
25 became Auctionomics' client in 2021?

1 A. Or '02.

2 Q. And prior to that, Auctionomics didn't have
3 any interaction with Google; is that correct?

4 A. That's correct.

5 Q. Okay. But prior to Auctionomics becoming
6 involved with Google in 2021, you had different
7 periods in which you provided consulting services to
8 Google; is that correct?

9 MR. EWALT: Objection to form.

10 THE WITNESS: No, I wouldn't say that's
11 correct, no.

12 BY MS. ABSTON:

13 Q. You never provided Google with any sort of
14 consulting services prior to 2021?

15 A. I -- oh, I'm sorry. That's not correct.

16 In 20- -- going way back. The time that I
17 provided Google, it was at their IPO, which was,
18 what, 2004, or something like that, way back. I
19 was -- I was involved in providing consulting
20 services as to the -- they used an auction for an
21 IPO, that auction, and I provided consulting services
22 in connection with that. And I don't know what
23 counts as consulting services.

24 So just to be complete, the -- I was a
25 visiting scholar -- I don't think that counts as

1 consulting services -- but anyway, I was a visiting
2 scholar at Google as well.

3 Q. Well, then let's broaden it. We will come
4 back to that, actually. A few more questions, and we
5 will take a break.

6 Does Auctionomics have any clients that are
7 on retainer?

8 A. No.

9 Q. Okay. Does Auctionomics have an active
10 retainer agreement with Google?

11 A. An active retainer agreement? I don't think
12 so. I'm not quite sure what that means. But I don't
13 think so.

14 Q. And so for this matter, you have a contract
15 with Auctionomics to assist you with your work
16 pertaining to Google's DOJ trial and the EDTX trial;
17 is that correct?

18 A. No.

19 Q. Okay. What's incorrect about that
20 statement?

21 A. I have an understanding with Auctionomics
22 that there's no written contract between me and
23 Auctionomics regarding the support.

24 MS. ABSTON: Okay. I think we have reached
25 a good breaking point. We can stop and take a

1 ten-minute break. Is that good enough or do we need
2 longer, Doctor?

3 THE WITNESS: I am okay.

4 THE VIDEOGRAPHER: The time is 10:22 Pacific
5 Time. We are going off the record.

6 (Recess taken.)

7 THE VIDEOGRAPHER: The time is 10:39 a.m.
8 Pacific Time. We are back on the record.

9 BY MS. ABSTON:

10 Q. Okay. Dr. Milgrom, did you speak with
11 counsel over the break?

12 A. We chatted, yeah.

13 Q. Okay. Did you discuss your testimony here
14 today?

15 MR. EWALT: Objection. I'm going to
16 instruct you not to answer any questions about
17 discussions with counsel.

18 BY MS. ABSTON:

19 Q. Are you going to follow your attorney's
20 instruction?

21 A. I will.

22 Q. Before you went on a break, we were talking
23 about Auctionomics.

24 Do you recall that?

25 A. Yep.

1 Q. Okay. Let's talk a little bit more about
2 Auctionomics and the work specifically in this case,
3 which I refer to as "the EDTX case."

4 Does that sound okay?

5 A. That's fine, yes.

6 Q. Okay. So you said that Auctionomics is
7 comprised of independent contractors; is that
8 correct?

9 MR. EWALT: Objection to form.

10 THE WITNESS: Comprised of -- well, that is
11 the -- we don't have employees that do these. We
12 bring together teams of people that we commonly work
13 with.

14 BY MS. ABSTON:

15 Q. Okay. So you have a team of -- a team from
16 Auctionomics, nonemployees, that have assisted you
17 with your work in this case?

18 A. Yes.

19 Q. And who specifically from Auctionomics has
20 assisted you with your work in this case?

21 A. Well, let's see. There's Andy Skrzypacz
22 over here, and where is Mitch? Mitch is in another
23 room, Mitch Watt. And Hunter Guru and Albert Zuo,
24 and then a team of people. There's a lot of people
25 who have been involved.

1 Let's see. A computer team in Canada. So
2 we have Kevin Leyton-Brown, we have Neil -- oh, I'm
3 blanking on names. There's three people in Canada
4 who are -- who are coders. We have Marco Pagnozzi.
5 We have -- who am I missing? Oh, a Paulo Somaini,
6 coming back local.

7 Those are the names that come to mind. That
8 might be complete. It might -- it's complete to the
9 best of my memory.

10 Q. Okay. So for this case, I think we have
11 listed off -- one, two, three, four -- approximately
12 11 different team members from Auctionomics that may
13 have assisted you?

14 A. Yes.

15 Q. Does that sound right?

16 A. Something like that. Right.

17 Q. Do you think that it might be more than
18 that?

19 A. I think that -- I think there's a chance
20 that's the complete list.

21 Q. Okay.

22 A. Ah, wait a minute. One more.

23 Q. Okay.

24 A. Assaf Eilat.

25 Q. So we will get a count on that. But I'm

1 going to say it's about 11 to 12?

2 A. Okay.

3 Q. If you think that that's right?

4 A. Yes.

5 Q. And some of those team members are here in
6 the United States and some are international?

7 A. Yes.

8 Q. And so you've got at least three people in
9 Canada; is that correct?

10 A. Yes.

11 Q. Are there any other international team
12 members?

13 A. Marco Pagnozzi is in Italy. Assaf Eilat is
14 in Israel.

15 Oh, could I be missing -- okay. I'm sorry.
16 I missed the Spanish guys.

17 Q. Okay.

18 A. Asun Mochon is in Madrid.

19 Q. Okay.

20 A. Project manager. Specifically on this case?
21 I think specifically on this case, okay.

22 Q. Okay.

23 A. That's my best. Best recollection.

24 Q. And does Silvia assist with the work on this
25 case?

1 A. Silvia is handling contracting and matters
2 like that. She's not working on -- didn't assist me
3 with the preparation of my report or testimony.

4 Q. Okay. And each of these individuals is an
5 independent contractor who bills Auctionomics one
6 rate, and then Auctionomics bills Google; is that
7 right?

8 A. I think so. That's right.

9 Q. And then when Auctionomics bills Google, do
10 they bill a higher hourly rate?

11 MR. EWALT: Objection to form.

12 THE WITNESS: Well, Auctionomics -- they --
13 again, they have complicated billing arrangements.
14 Some of it's fixed price, some of it's hourly. And
15 the arrangements speak -- there's not a direct
16 pass-through of the costs, I think is what you're
17 asking. There's not.

18 BY MS. ABSTON:

19 Q. So I think we might be up to -- maybe closer
20 to 20 team members at Auctionomics who have supported
21 you on this case.

22 Does that sound right?

23 MR. EWALT: Objection to form.

24 THE WITNESS: It sounds high. Is it that
25 many? I haven't counted -- I haven't counted them.

1 That sounds, like, high.

2 BY MS. ABSTON:

3 Q. Between 12 and 20, potentially?

4 MR. EWALT: Objection to form.

5 MS. ABSTON: We can go ahead and count them
6 on a break.

7 THE WITNESS: All right. We can count them.

8 BY MS. ABSTON:

9 Q. All right. So do these individuals bring
10 skills to this case that you do not?

11 A. Well, computer programming skills is the
12 skills they bring to the case that I -- that they
13 have more than I have.

14 Q. Okay. So would that be narrowed to just the
15 three team members that you, I think, noted were the
16 computer team?

17 A. There's two computer teams, right.

18 Q. Okay.

19 A. We have -- as I understand is common in
20 these matters, we each -- each computation is done
21 twice independently by independent groups, and then
22 they compare and reconcile their findings. So there
23 is -- there's a programming done here and programming
24 done in Canada, and they compare the results of --
25 compare and reconcile differences.

1 Q. Okay. And who are the team members on each
2 of those two teams?

3 A. Hunter has done some of the coding. Paulo
4 Somaini has done some of the coding.

5 I'm not quite sure actually who has -- and
6 the team in Canada is led by Kevin Leyton-Brown, who
7 is a professor at the University of British Columbia.
8 He has three people working with him.

9 You know, here, I think Paulo Somaini
10 probably leads the computations that are done here.

11 Q. Okay.

12 A. And --

13 Q. And who coordinates -- strike that.

14 Who from Auctionomics is the coordinator
15 between the two computer teams?

16 A. Oh, we have -- so the project manager is
17 Asun Mochon --

18 Q. Okay.

19 A. -- in Madrid. And she -- I'm sorry. Am I
20 covering my mic? Pardon me.

21 Asun conducts the meetings to ensure that
22 everything is coordinated and done time.

23 Q. Okay. And are you a part of those meetings?

24 A. I am a part of many of the meetings.

25 Q. If you do not join a meeting, do you receive

1 meeting updates?

2 MR. EWALT: Objection. Instruct you not to
3 answer about the content of communications with your
4 staff, pursuant to the expert stipulation that we
5 have in this case.

6 BY MS. ABSTON:

7 Q. Do you ever review the invoices for your
8 Auctionomics team members?

9 A. I do not.

10 Q. Who reviews the invoices for your
11 Auctionomics team members?

12 A. Silvia does that.

13 Q. Okay. Are you involved with setting the
14 rates, the hourly rates of your Auctionomics team
15 members for this case?

16 A. No. Silvia does that as well.

17 Q. Okay. And then I think you mentioned
18 coding. Do you code?

19 A. I haven't coded in several years. I had --
20 I've been trained, but it's not what -- I have no
21 comparative advantage at coding.

22 Q. When was the last time you coded?

23 A. It's been several years, as I say. You
24 know, I've done some little things just for personal
25 reasons just within the last couple of years, but I

1 haven't done any serious coding in decades.

2 Q. Are there any other skills outside of
3 computer programming that your Auctionomics team
4 members bring to the table for this case?

5 A. Well, they bring lots of skills, some of
6 which are -- you know, we all share. I mean, Andy
7 over here is a professor of economics, and we talked
8 about economic analysis.

9 Mitch, who's here today, Mitch Watt is --
10 well, yeah, I guess he has some extra skills. He was
11 a speech writer and mathematician and a -- you
12 know -- and is trained in economics. I was his -- am
13 his Ph.D. advisor.

14 The -- yeah, these are all people that I've
15 worked with for some time, and, yep, they are skilled
16 people.

17 Q. Okay. And so when they submit invoices,
18 Silvia is the one who reviews their invoices; is that
19 correct?

20 A. That's right.

21 Q. Okay. Do you have any idea of how many
22 hours your Auctionomics team members have put in for
23 the Eastern District of Texas case?

24 A. I haven't even looked.

25 Q. And so you don't sign or approve any of the

1 contracts related to retaining your Auctionomics team
2 members?

3 A. Typically not.

4 Q. Did you review any contracts for your
5 Auctionomics team members related to the Google DOJ
6 trial?

7 A. I don't think I have, no.

8 Q. Did you review any contracts relating to
9 your Auctionomics team members for this Google case
10 in the Eastern District of Texas?

11 A. I don't think so, no.

12 Q. And so this same team would also assist you
13 if you were retained as an expert witness in another
14 litigation; is that correct?

15 MR. EWALT: Objection to form.

16 THE WITNESS: No.

17 BY MS. ABSTON:

18 Q. Okay. So your team at Auctionomics will
19 fluctuate based on whatever litigation may retain
20 you?

21 A. Well, whatever -- remember, we haven't done
22 the whole series of litigation projects, as I just
23 described. We put together the team -- what the team
24 needs. And, you know, that's how it works.

25 Q. Okay. And so all of these team members

1 report to you?

2 A. No. We have a project manager who, you
3 know, makes sure that the tasks are allocated. I
4 talk to the project manager. She coordinates the
5 team and reports to me. In the typical business
6 sense, no.

7 Q. Okay. What about in the nontypical business
8 sense, do they report to you -- strike that.

9 In the nontypical business sense, do your
10 Auctionomics team members report to you?

11 MR. EWALT: Objection, form.

12 THE WITNESS: Report in a nontypical
13 business sense. I talk to all -- everybody who is
14 producing work for me, I question them about it. I
15 mean, is this what we mean by "nontypical business
16 sense"?

17 I make sure that anything that I'm relying
18 on, that I have -- that I understand completely; and
19 that if I have any questions, that they are answered,
20 and that the work has been checked.

21 If there's calculations that are done or
22 graphs that are prepared or tables that are prepared
23 that need checking, I make sure that that has been
24 done. And I guess in that sense, they report to me.

25 ///

1 BY MS. ABSTON:

2 Q. And could you ballpark what Auctionomics has
3 charged Google thus far for the Eastern District of
4 Texas case?

5 A. You know, a few million dollars. Could I
6 ballpark? A few million dollars, ballpark.

7 Q. So Auctionomics, to your knowledge, has
8 turned over invoices to Google that have been paid up
9 until this point; is that correct?

10 A. Auctionomics has invoiced Google. Is that
11 what you mean by "turned over invoices"?

12 Q. Yes.

13 A. Auctionomics has invoiced Google, and some
14 of those invoices have been paid, yes.

15 Q. But you never saw the invoices that were
16 sent to Google pertaining to the Eastern District of
17 Texas case?

18 A. I don't -- that's not part of my routine.
19 They go out directly from -- from Auctionomics'
20 support staff to Google.

21 Q. Okay. So as a co-owner of Auctionomics,
22 does Auctionomics have a general goal of a percentage
23 markup?

24 MR. EWALT: Objection. Form.

25 THE WITNESS: I don't know what that means.

1 BY MS. ABSTON:

2 Q. Does -- does Auctionomics have a markup on
3 the invoices that they send to Google?

4 A. We earn profits, if that's what you're
5 asking about. I don't know whether Auctionomics has
6 a markup on the invoices. I'm sorry.

7 BY MS. ABSTON:

8 Q. Does Auctionomics pay its independent
9 contractors for work done for the Google litigation?

10 A. Yes.

11 Q. Okay. And when Auctionomics charges Google,
12 Auctionomics gets revenue from the work its
13 independent contractors do; right?

14 A. Well, we employ independent contractors.
15 The independent contractors help us prepare reports.
16 We pay them. We bill Google. There's no direct
17 pass-through. There's a negotiated price that we
18 charge.

19 Q. Okay. But Auctionomics charged Google more
20 than the independent contractors charge Auctionomics;
21 is that correct?

22 A. You're relating things. I mean, there's --
23 we have revenues and we have costs, right? And the
24 revenues exceed the costs, yes.

25 Q. So, at the time, do you know how much in

1 total Auctionomics has billed Google for your and
2 your team's time, since you've been retained in the
3 Eastern District of Texas matter?

4 A. Please repeat the question.

5 Q. So, at this time, do you know how much in
6 total Auctionomics has billed Google for you and your
7 team's time, since you've been retained in the
8 Eastern District of Texas matter?

9 A. No.

10 Q. Do you have a ballpark of how much you --
11 how many hours you have -- strike that.

12 Do you have a ballpark of how many hours you
13 and your team have billed Google for your work in the
14 Eastern District of Texas matter?

15 A. I could probably ballpark my own hours. I
16 have no idea how many hours the team has spent. I
17 haven't looked at those invoices.

18 Q. What would be the ballpark of the number of
19 hours that you have billed Google for the work in the
20 Eastern District of Texas matter?

21 A. 250 to 300, somewhere in that ballpark.

22 Q. Do you know how much Auctionomics intends to
23 bill Google --

24 MR. EWALT: Objection to form.

25 ///

1 BY MS. ABSTON:

2 Q. -- for the Eastern District of Texas matter?

3 A. I don't.

4 Q. But you said that you've already --
5 Auctiononomics -- well, let's back up.

6 So you also submit your time to
7 Auctiononomics, and then it's all compiled and sent to
8 Google; is that correct?

9 A. No.

10 Q. So your time is done separately, invoiced
11 separately from the Auctiononomics team?

12 A. Yes.

13 Q. So let's walk through that process a little
14 bit.

15 So when you submit your hours to Google,
16 that's you personally, or is that something that
17 Silvia does?

18 A. No, I -- actually, it's also not me
19 personally. I have -- Milgrom Consulting is an
20 S corporation. It's me. That's my alter-ego, if you
21 will. I'm just trying to be precise here.

22 Q. Yes, thank you. No, thank you.

23 A. I bill my time through my S corporation,
24 Milgrom Consulting, and I forward that. And I
25 actually have assistance putting that into the form

1 of an appropriate invoice form by the S staff at --
2 at Auctionomics, which forwards that along with the
3 Auctionomics invoice to Google.

4 Q. Okay. And do you review your invoices
5 before they are sent to Auctionomics and eventually
6 sent to Google?

7 A. I prepare -- well, I prepare a timesheet,
8 and I review that I'm paid the right amount when my
9 checks arrive. But when the check arrives, I say,
10 Okay, does this correspond to what I wrote? And so
11 far it always has.

12 Q. Okay.

13 A. But, no, I don't look at -- I have never
14 looked at an invoice that was sent to Google.

15 Q. Okay. About how many checks have you gotten
16 from Google in the Eastern District of Texas matter?

17 A. I think the checks that I have gotten from
18 Google are not separately marked according to what
19 matter they come from. I get checks monthly.

20 Q. So when you do your timesheets, do you
21 designate when you're working on the DOJ trial, for
22 example, versus when you're working on the Eastern
23 District of Texas case?

24 A. My --

25 MR. EWALT: I'm going to object to that and

1 instruct you not to answer about the content of your
2 communications and your billing -- on the bills and
3 invoices, as part of the expert stipulation.

4 MS. ABSTON: Well, okay.

5 BY MS. ABSTON:

6 Q. When you sit down to work on a Google
7 matter --

8 A. Yep.

9 Q. -- do you -- strike that.

10 Okay. So just to confirm, when you're
11 compiling your timesheets, you're recounting your
12 work on any Google matter that you may have touched
13 during your billable hours; is that correct?

14 MR. EWALT: Objection to form.

15 THE WITNESS: "Recounting your work on" --
16 I'm sorry, that --

17 MS. ABSTON: That's okay.

18 BY MS. ABSTON:

19 Q. So Google -- you testified, I think, that
20 Google -- they just send you a check. They don't
21 designate if it was for the DOJ trial or if it was
22 for the Eastern District of Texas case; is that
23 correct?

24 MR. EWALT: Objection to form.

25 THE WITNESS: I -- when -- when I receive --

1 so I receive my money electronically, and I don't see
2 anything except an amount, when that -- when that
3 amount arrives.

4 BY MS. ABSTON:

5 Q. Okay. And you've never been given
6 instructions to designate this is for the Eastern
7 District of Texas case versus this is for the DOJ
8 trial?

9 A. My timesheet says what I'm working on on
10 each line. Every hour is accounted for differently.

11 Q. Okay. And you mentioned you get monthly
12 checks from Google. How much are those checks?

13 MR. EWALT: Objection to form.

14 THE WITNESS: Okay. So there -- it's -- I
15 get monthly electronic -- actually, I get it from
16 Auctionomics. They -- Auctionomics forwards that to
17 me. They -- they send -- I believe they send two
18 invoices to Google, which are paid together, and then
19 I get money from -- from them. And it varies. It
20 can vary from -- how much are those checks? They can
21 be small, they can be large. It depends on how much
22 work I did that month.

23 BY MS. ABSTON:

24 Q. Okay. What would you consider large?

25 A. What would I consider large? Well, you

1 know, if I'm -- if I -- when I went to Virginia and I
2 was there for multiple days, and the largest check
3 was a six-figure check.

4 Q. And are you the only owner of your S corp?

5 A. Yes.

6 Q. Okay. We will come back to that.

7 And do you recall you testified that you
8 checked the work you relied upon that was performed
9 by Auctionomics team members in this case?

10 A. I testified about that, yes.

11 Q. Okay. And did your Auctionomics team
12 members initiate work independently that you later
13 proofed?

14 A. That -- there are places where there is
15 judgment to exercise. Everything that's done is done
16 at my instruction. You know, it's -- your question
17 as posed is a little bit tricky to answer.
18 Everything that is done is done at my instruction.

19 Q. But did you proof anything that was done by
20 Auctionomics team members of work they initiated
21 independently -- or strike that.

22 Did you check anything that was done by
23 Auctionomics team members that they independently
24 initiated?

25 A. Yeah, so the -- at what point does something

1 become -- so just to be clear about what we're
2 talking about here so there's no misunderstanding
3 between us, you know, I might say, you know, please
4 check the calculations that are done by the professor
5 on the other side of this case. And exactly how they
6 go about -- and then they come back with the
7 checking, and Then I look at how that's done.

8 And there's quite a lot of judgment
9 exercised on the -- so you could say that's initiated
10 by me or we could quibble about that, about what it
11 means to be "initiated."

12 But I -- the work that's done is done at my
13 direction. The way it's done, you know, they -- the
14 way it's done, there's -- these are talented people,
15 and then they describe to me how they have done it,
16 and if I'm not satisfied, then I tell them to do it a
17 different way. Or if they are not sure what to do, I
18 give them more detailed instructions. But like that.

19 Q. Are there opinions that were first arrived
20 to by your team members that you later adopted?

21 A. I don't recall any such.

22 Q. Okay. And then all of the opinions in your
23 report are your own; is that correct?

24 A. They are all my own opinions, yes.
25 Certainly.

1 Q. Okay. And I want to circle back to some
2 previous testimony.

3 So, just to clarify, has Auctionomics ever
4 advised Google on market design?

5 A. No.

6 Q. Okay. [REDACTED]

7 [REDACTED]

8 A. [REDACTED]

9 Q. [REDACTED]

10 [REDACTED]

11 A. [REDACTED]

12 Q. [REDACTED] [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 MR. EWALT: [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 BY MS. ABSTON:

19 Q. Are you able to answer my question
20 without --

21 A. Boy, that's a word -- let's see.

22 Yeah, okay. So I think I can answer this
23 question.

24 Q. Okay.

25 A. So go ahead and please repeat it now?

1

Q. [REDACTED]

2 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10

THE WITNESS: Right. Okay. [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16

BY MS. ABSTON:

17

Q. [REDACTED]

18

A. [REDACTED]

[REDACTED]

19 [REDACTED]

[REDACTED]

20 [REDACTED]

21

Q. [REDACTED]

22

A. [REDACTED]

[REDACTED]

23 [REDACTED]

24 [REDACTED]

[REDACTED]

25 [REDACTED]

1 Q. Okay. So before Auctionomics was
2 retained -- strike that.

A horizontal bar chart with 12 rows. Each row consists of a small black square on the left and a black bar of varying length. The bars are arranged in a way that suggests a sequence or progression, with some bars being longer than others. The bars are black on a white background.

14	MS. ABSTON: Great.
----	--------------------

15 THE WITNESS: [REDACTED]

16	
17	

18 MS. ABSTON: Okay.

19 THE WITNESS: [REDACTED]

20	
21	
22	

23 BY MS. ABSTON:

24 Q. [REDACTED]

25 [REDACTED]

1

2

A.

3

4

Q. Okay. And is it the typical process when someone like Google or a client would reach out that you're first consulted and, then an Auctionomics team is compiled according to the needs of the project?

8

MR. EWALT: Objection to form.

9

THE WITNESS: By "you," you mean personally?

10

Is that what the "you" there means?

11

MS. ABSTON: Yes.

12

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19

THE WITNESS: Me personally. Most of the time the projects arise -- for Auctionomics arise at Silvia's initiative. I'm the attraction to many people because of my credentials. But Silvia will become aware of something or will -- whatever, and say, you know, this is something we can do, and we have unique -- we have Professor Milgrom; we have a unique team.

20

21

And so normally, I think most often the initial contacts are through Silvia.

22

BY MS. ABSTON:

23

24

25

Q. Okay. And have you in your personal capacity ever worked with Google in a nonlitigation consulting matter?

1 A. Yes.

2 Q. Okay. And have we discussed all of those
3 matters here today thus far?

4 A. I think we've mentioned briefly that I
5 worked as a visiting research associate or visiting
6 research fellow, or whatever they called me at the
7 time. I was studying -- that was a matter where I
8 was studying how pricing of cloud services would be
9 done -- and I was studying it for academic
10 purposes -- and asked to be given access, and they
11 made me a visiting research associate so that I would
12 have access to that material.

13 Q. Okay. I want to come back and talk about
14 that a little bit later.

15 But you've also mentioned there's -- you
16 provided nonlitigation consulting to Google in
17 relation to their IPO; is that correct?

18 A. Oh, and the IPO, right. Absolutely. Thank
19 you.

20 Q. Okay. And so --

21 A. That's right.

22 Q. How did you get connected with Google in the
23 first place?

24 A. Dating back to the IPO?

25 Q. How did you -- how did you ever begin

1 consulting with Google?

2 A. There are a lot of people there who know who
3 I am. There's a lot of option work that's done
4 there. If you -- in this case if you read documents,
5 you'll see that some of the things that they work on
6 result from citing my research, my published
7 research.

8 So there are people there who know me. One
9 is [REDACTED], for example, who has been involved in
10 Google since practically its founding, is a member of
11 the National Academy of Sciences, as am I -- or the
12 American Academy of Arts and Sciences, as am I. I
13 have forgotten which academy we share. We both -- so
14 he's one.

15 They have -- yeah, I'm -- I'm known in my
16 field.

17 Q. So you consulted for the IPO, which I think
18 you testified happened in 2004; is that correct?

19 A. I think that's right.

20 Q. Okay. So --

21 A. Yeah.

22 Q. -- you started consulting, though, before it
23 was public in 2004; is that correct?

24 A. Yeah, right. It wasn't -- the IPO was how
25 it become a public company, yeah.

1 Q. Right. So what year did you start
2 consulting or having discussions with Google about
3 the IPO?

4 A. Oh, it was in the six months before the IPO.

5 Q. Okay. So prior to, let's say, 20- -- or
6 2003, you never provided any sort of nonlitigation
7 consulting work to Google; is that correct?

8 A. That's correct.

9 Q. Okay. And so let's talk a little bit more
10 about the IPO.

11 I know you just described that many people
12 at Google know who you are. Was the initial
13 reach-out from Google stemming from some of your
14 professional engagements?

15 A. Yeah, I -- my understanding is that that was
16 [REDACTED] at Google
17 at the time, who advised them to reach out to me.

18 Q. Okay. And so they reached out to you in
19 2003.

20 A. Or '04.

21 Q. Or 2004. Okay.

22 A. Yeah, probably '04, maybe '03, yeah.

23 Q. And at the time you were working at
24 Stanford?

25 A. Yes.

1 Q. And so once they reached out to you, did you
2 go on Google's campus and conduct meetings with them
3 discussing the pending IPO?

4 A. I did a couple -- just a couple of meetings,
5 yes.

6 Q. Okay. What was the first step after they
7 reached out to you regarding the IPO?

8 A. There were proposals from investment banks
9 about what to do, and I read those proposals. There
10 was -- I think that was the first step.

11 Q. Do you remember who was at your first
12 meeting with Google?

13 A. I remember when Sergey Brin walked into the
14 room, having just com from a volleyball game and
15 dressed in sweaty clothing amidst a roomful of
16 lawyers and bankers with suits and ties. It was
17 pretty funny.

18 Yes, I remember some of the -- you know,
19 there was -- it was lawyers and bankers and the
20 founders. And I think [REDACTED]

[REDACTED] [REDACTED].

22 Q. So your first meeting, you remember meeting
23 Sergey, who -- Sergey Brin is the founder -- one of
24 the founders of Google; is that correct?

25 A. Yes, I remember that.

1 Q. And then Larry Page is also a founder of
2 Google; is that correct?

3 A. Yeah.

4 Q. And so on your very first meeting, Larry and
5 Sergey were both present?

6 A. I remember Sergey for sure. And I'm a
7 little vague about whether Larry was there. If he
8 was there, he was quiet.

9 Q. But Sergey was not quiet in that meeting?

10 A. Well, the way he walked in, he stood out.

11 Q. And was he vocal within the meeting
12 regarding the IPO?

13 A. I don't recall a lot of detailed discussion
14 about the IPO. I'm sorry, I can't answer that.

15 Q. And did you know [REDACTED] before he
16 reached out to you?

17 A. Yes.

18 Q. And through what organization was that?

19 A. Well, he had been -- I guess when I first
20 met him, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

7 Q. Okay. So when you were providing these
8 consulting services to Google, did you participate in
9 weekly meetings leading up to the IPO?

10 A. No.

11 Q. What type of consulting services did you
12 provide to Google during this time?

13 A. It -- the -- they already had bankers, you
14 know, and attorneys advising them, and they already
15 had a proposal. And they were skeptical about the
16 proposal, and so my role was more or less to review
17 the proposal and discuss it with them and the dangers
18 that it had, and whether this was a good idea, and
19 whether there were alternative ways.

20 You know, we talked about all sorts of
21 alternatives. Google didn't need to raise money at
22 the time. It was very profitable, kind of
23 cash-flow-positive company. [REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]. So I was engaged in discussions,
but just a couple of meetings. I'd say maybe three
meetings in total.

Q. Okay. And did you have a direct report when
you were providing those consulting services?

A. No.

Q. Okay. Who did you communicate the most with
at Google during that time?

A. [REDACTED].

Q. And was Sergey in every single meeting that
you ever had, those three meetings relating to the
IPO?

A. No. I remember that that was the first
meeting, the big meeting with the bankers.

Q. Okay. And outside of the meetings, were
there any sort of assignments that were given to you
or other consulting questions that were emailed to
you?

A. It was just execution. No. I was really
commenting on the -- on the proposals that were in
front of them and what their advantages and
disadvantages were so that they were confident that

1 all the angles had been considered.

2 Q. Okay. And I believe the two founders of
3 Google both attended Stanford; is that correct?

4 A. That's my understanding, too, yep.

5 Q. But you didn't know them when they were
6 students at Stanford?

7 A. I did not, no.

8 Q. And they weren't, like, students within any
9 of your classes; is that correct?

10 A. I had never met them until that meeting.

11 Q. And do you still keep in touch with [REDACTED]

12 [REDACTED]

13 A. Not regularly. I've been -- you know, we're
14 acquaintances. I was at a birthday party of his last
15 year, a big party that they threw. Once a year sort
16 of thing.

17 Q. Okay. And then you mentioned [REDACTED],
18 I think; is that correct?

19 A. Yes. Yes.

20 Q. Okay. And did you frequently interact with
21 him when consulting regarding Google's IPO?

22 A. No, just that once, actually.

23 Q. Just that once. And do you still stay in
24 contact with him in any way?

25 A. Not directly, no.

1 Q. And do you indirectly stay in contact with
2 [REDACTED] in any way?

3 A. Yeah, there's -- there's -- [REDACTED] has
4 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED], that sort
9 of thing.

10 Q. And hopping back for a second. You said you
11 were asked to review specific aspects of the
12 proposal; is that correct?

13 MR. EWALT: I'm just going to caution you.
14 We talked about the involvement of lawyers in the IPO
15 process here, and so I'm going to ask that you form
16 questions that do not seek to elicit privileged
17 information.

18 BY MS. ABSTON:

19 Q. I am in no way seeking to elicit privileged
20 information by asking you anything like that. So --
21 well, did you sign an NDA for your work related to
22 Google's IPO in 2004?

23 A. You're asking me to recall what I signed in
24 2004. You're smiling. You know I can't recall that.

25 Q. [REDACTED]

1

[REDACTED]

2

A. [REDACTED]

3

Q. [REDACTED]

4

[REDACTED]

5

A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

17

A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Okay.

21

And are you still in contact with either of

22

Google's founders?

23

A. No.

24

Q. Okay. Did you ever have any interaction

25

with [REDACTED]

1 A. No.

2 Q. Did you ever have any interaction with any
3 other early Google employees?

4 A. No. [REDACTED] that we
5 mentioned. [REDACTED]

6 Q. And then how did Google compensate you for
7 your consulting services at the time?

8 A. At which time?

9 Q. At this time. How did Google compensate
10 you?

11 A. This time, this case?

12 Q. How did Google compensate you for your
13 consulting services relating to the IPO?

14 A. Relating to the IPO, it was a fixed price.
15 There was some -- I don't remember the number, but
16 they paid me some amount of money.

17 Q. And that had no connection to any sort of
18 stock when Google did end up coming public --
19 becoming public?

20 A. No.

21 Q. [REDACTED]
[REDACTED]

23 A. [REDACTED]

24 Q. Okay. And without revealing any sort of
25 privileged information, when you consulted with

1 Google on the IPO, did you make recommendations
2 regarding their auction?

3 A. Yes.

4 Q. Okay. And without revealing any sort of
5 privileged or legal or confidential information, did
6 you -- during your consulting for Google's IPO, did
7 you make recommendations about the structure of their
8 advertising auctions?

9 A. No.

10 Q. And do you know how much money was raised in
11 the IPO?

12 A. Yes.

13 Q. Okay. And what -- how much money was raised
14 in the IPO?

15 A. Well, this was -- it was one of those funny
16 numbers. There were -- everything was very amusing
17 at that time. It was about 2.7 billion. He was EV'd
18 as 2.7 something, dot, dot, dot, was the target for
19 the amount that they wanted to raise. So about
20 2.7 billion.

21 Q. Okay. I want to hop back quickly to just
22 clarifying some of your consulting work that we have
23 talked about today, things outside of your academic
24 employment.

25 So we've been looking at, I think what we

1 marked as Exhibit 1, your CV.

2 A. Yep.

3 Q. Do you use a different CV for nonlitigation
4 work?

5 A. Yes.

6 Q. Okay. And what's different about your
7 nonlitigation CV?

8 A. It's a subset of this. That is the -- here
9 there's litigation support, there's patents. This is
10 not something I would normally put in my academic CV.
11 I added it for purposes of this litigation.

12 Q. And we talked about a few different
13 litigation consulting groups today, right?

14 A. Uh-huh.

15 Q. Right? We have mentioned CRA.

16 A. Yep.

17 Q. And we have discussed Auctionomics.

18 Have you ever been a member of any other
19 sort of litigation consulting groups?

20 A. Yes.

21 Q. Okay.

22 A. Not a member. I have participated with.

23 Q. Yes, let's talk about those.

24 So what other litigation consulting groups
25 have you participated in?

1 A. Okay. So have I participated in any --
2 yeah, okay. Just -- I will interpret all those terms
3 in the most general way, most inclusive way.

4 So I worked with NERA. You know NERA.

5 Q. Okay. And what does NERA stand for?

6 A. National Economic Research Associates,
7 something like that. Known as "NERA."

8 And, again, before Auctionomics did any
9 litigation support, when I did any litigation-related
10 work, it was supported by someone other than
11 Auctionomics. So NERA supported the -- this
12 Google/Woods case, for example, when I did that.

13 And, actually, as far as litigation goes, I
14 think that's it. I think that was -- it was Charles
15 River Associates and NERA. And I think nobody else
16 for litigation support work.

17 Q. I have to look back, but do you recall the
18 date that you started -- or strike that.

19 And you started with CRA in 1996?

20 A. I think that -- well, somewhere around
21 there, yes.

22 Q. Around there. And so that was for both
23 litigation support and economic --

24 A. Yeah.

25 Q. -- consulting?

1 A. Yeah. We were -- yeah. Yes.

2 Q. Okay.

3 A. It was primarily at that time auction
4 consulting, not litigation work.

5 Q. Okay. And we've talked about a lot of
6 Auctionomics' consulting clients today; is that
7 correct?

8 A. We have talked about some, yeah.

9 Q. Okay. In your personal capacity, you've
10 provided consulting services that we briefly
11 discussed today; is that correct?

12 A. I have, yeah.

13 Q. Okay. And those --

14 A. And especially personal capacity, including
15 Milgrom Consulting. Yeah.

16 Q. Including Milgrom Consulting?

17 A. Yeah.

18 Q. And you provided, you know, personal
19 consulting services relating to economics and
20 auctions; is that correct?

21 A. Primarily, yes.

22 Q. What else have you provided economic -- or
23 what other personal consulting services have you
24 provided?

25 A. Well, I was saying "primarily" because I

1 haven't run through the whole list in my head. But
2 let's see if there's anything besides -- I mean,
3 that's predominantly.

4 I have spoken to people -- so -- are we --
5 can we limit attention to paid services? Is that
6 what we're talking about, as opposed to --

7 Q. Well, we can start with paid services. What
8 other paid personal consulting services have you
9 provided?

10 A. I think there might not be anything that's
11 paid besides what we have just mentioned.

12 Q. Okay.

13 A. Yeah.

14 Q. Okay. So you've mentioned -- so today you
15 have mentioned all of the paid economic consulting
16 services that you have provided?

17 A. Yes.

18 MR. EWALT: Objection to form.

19 THE WITNESS: Cash paid is what I'm
20 referring to here.

21 I have a -- okay. So -- all right. I will
22 wait for your question.

23 BY MS. ABSTON:

24 Q. Okay. So we've been discussing cash paid,
25 but can you further clarify any economic consulting

1 services that you've been compensated for in any way?

2 A. Yes. Sure. So, let's see. There is a
3 company called OneChronos. I am the chairman of the
4 scientific board for OneChronos, where I have
5 shared -- the compensation in the form of shares.
6 And it is -- OneChronos is a security market, does
7 the securities trading using a new technology, in
8 which I'm especially expert. It's what uses smart
9 markets, as they call them.

10 Oh, goodness. I'm blanking right now.

11 So Algorand, which is a cryptocurrency, I
12 was on the scientific advisory board and received
13 algos, which is a kind of cryptocurrency. I'm
14 basically an equity participant or was an equity
15 participant in Algorand.

16 I'm sure I'm missing something.

17 Q. What was your first ever economic
18 consultancy job that you had?

19 A. The -- oh, I was about to say that it was
20 the FCC, but actually that's not right.

21 I had a small task, I guess, when I was at
22 Yale, so that would have been before 1987. So it had
23 to be earlier. And it had to do with Alaskan Inuit
24 ownership of something. Gosh, it's very vague in my
25 recollection.

1 Q. And that was for -- that was not related to
2 litigation in any way; that was just purely
3 economic --

4 A. No, it was related to litigation.

5 Q. Okay.

6 A. It was about the economics of the regulation
7 of oil and gas pipelines in Alaska.

8 Q. Okay. I think I've seen that on your
9 testimony list. Hold on one second.

10 A. I'm struggling to remember the details.

11 Q. We will get there.

12 A. I'm an old man. I've been around for a long
13 time.

14 Q. We will get there. We will get there.

15 So I want to talk about only economic
16 consultancy at this point.

17 A. Yeah.

18 Q. Do you believe that we have discussed all of
19 your paid economic consultancy jobs that you've ever
20 had?

21 MR. EWALT: Objection to form.

22 THE WITNESS: I don't recall any others --

23 MS. ABSTON: Okay.

24 THE WITNESS: -- that we have --

25 ///

1 BY MS. ABSTON:

2 Q. Okay. But there could be some others?

3 A. This is what I recall. I've been around for
4 a long time.

5 Q. Okay, great.

6 Let's talk about your unpaid economic
7 consulting. Who would be some of the clients that
8 may have called you for unpaid economic consulting
9 advice?

10 MR. EWALT: Objection to form.

11 THE WITNESS: All small -- small business.
12 I get asked all the time, you know, every few weeks I
13 get calls -- and sometimes I'll offer a little bit of
14 advice -- from companies started by former students
15 or other projects.

16 BY MS. ABSTON:

17 Q. Have you ever consulted pro bono for any
18 larger companies?

19 A. Pro bono for a larger company. Governments,
20 but not companies, no.

21 Q. Okay. What governments have you provided --

22 A. I've given advice to Australia. I've given
23 advice -- I've given advice to the FCC in the US.

24 I'm friends with those guys. I've given small
25 things, you know, individual things at Ofcom and at

1 the UK.

2 Those are -- I have close connections --
3 I've worked on several occasions for Ofcom in the UK.
4 I think that's pretty much it.

5 Q. Okay.

6 A. Those guys, you know, I do something for
7 free for sometimes.

8 Q. Okay. And do you currently sit on any
9 boards?

10 A. No.

11 Q. Okay.

12 A. Well, you mean board of directors when you
13 asked that?

14 Q. Yes.

15 A. And the answer is no. And I have already
16 described to you scientific advisory boards, where
17 the answer is yes.

18 Q. Have you previously been -- sat on any board
19 of directors?

20 A. I'm sorry. The Auctionomics board of
21 directors. That's it.

22 Q. Okay. And I want to circle back to some of
23 the previous consulting engagements that you've
24 discussed throughout today, and I think you recount
25 these in your July 30th report.

1 But I believe earlier today you mentioned
2 Yahoo; is that correct?

3 A. Yes.

4 Q. Okay. And you were compensated for the
5 commercial advice that you gave to Yahoo; is that
6 correct?

7 A. Yes.

8 Q. And then you also gave commercial advice to
9 OpenX; is that correct?

10 A. Yes. Later.

11 Q. And is there any other commercial advice
12 that you have given to companies that you were
13 compensated for that we have not discussed today?

14 A. Not that I recall.

15 Q. Let's talk about Yahoo. When was the first
16 time that you provided Yahoo -- strike that.

17 When was the first time you were ever in
18 contact with someone from Yahoo?

19 A. Oh, well, that's hard to know. The
20 commercial application engaged in the people in their
21 advertising program, it was around -- what am I
22 thinking? It's 2007, maybe, something like that. I
23 think 2007, I think is about right.

24 Q. So I think you stated -- or in your report,
25 from 2007 to 2008, you advised Yahoo. Does that

1 sound right?

2 A. Yeah. Was it just a year? Maybe, okay.

3 Q. Do you think that it could have been longer
4 than a year?

5 A. Well, it could have been two years or
6 something. But about -- a short period.

7 Q. And was that like a formalized agreement to
8 give them commercial advice?

9 A. I was paid for it, if that's what you mean.
10 I don't remember the contract. I'm not sure I --

11 Q. Okay.

12 A. Yeah.

13 Q. And that was prior to the formation of
14 Auctionomics; correct?

15 A. Oh, yeah. It was even before Google had
16 purchased DoubleClick.

17 Q. Okay. And when did Google purchase
18 DoubleClick?

19 A. Right around -- just after -- right, I
20 think -- actually, they closed in 2007, 2008. I
21 started working at Yahoo a little bit before Google
22 had -- that was the first thing everybody was talking
23 about.

24 Q. I was going to ask.

25 So when -- so when is the first time you

1 recall hearing about DoubleClick?

2 A. Then.

3 Q. So you were at Yahoo in 2007, and you start
4 hearing about DoubleClick. What was your
5 understanding of DoubleClick's products in 2007?

6 A. You mean before I joined Yahoo or started
7 working with Yahoo or during?

8 Q. We will start with, what was your
9 understanding of DoubleClick's products prior to when
10 you joined Yahoo in 2007?

11 A. To be clear, anybody who was around then saw
12 DoubleClick appearing on ads, you know, that were
13 popping up on our screens. So I was aware of the
14 name "DoubleClick" even before I started at Yahoo.

15 And then the -- this was a period in which
16 ad exchanges were not yet prominent in the -- in the
17 industry, and Yahoo was thinking about acquiring
18 RealNetworks, which they eventually did, as their ad
19 exchange, to set up an ad exchange, and they were
20 interested in what Google was doing with its
21 acquisition of DoubleClick.

22 And I was hearing about the organization of
23 ad exchanges and the challenges doing it. There were
24 huge organizational challenges for -- for a legacy
25 organization to even set up an ad exchange, because

1 it conflicted with -- you know, Yahoo was also at
2 that time the web's largest publisher, and it was --
3 you know, it had a sales force that was worried that
4 they were going to be, you know, cut out by some --
5 this direct method, and the question of what would
6 happen, the relation to guaranteed and nonguaranteed
7 contracts. All those issues were coming up.

8 I'm sorry. I'm not sure I'm answering your
9 question. I think I should stop and listen to your
10 question again. It was a complicated time, yeah.

11 THE REPORTER: I need to go off the record.

12 THE VIDEOGRAPHER: The time is 11:36 a.m.
13 Pacific Time. We are going off the record.

14 (Recess taken.)

15 THE VIDEOGRAPHER: The time is 11:52 a.m.
16 Pacific Time. We are back on the record.

17 BY MS. ABSTON:

18 Q. Okay. And Dr. Milgrom, did you speak with
19 your counsel during the break?

20 A. Yeah, just chitchat.

21 Q. Okay. Did you discuss your testimony here
22 today?

23 A. No. Well -- no, not really. No.

24 Q. Okay. Did you discuss any aspect of your
25 testimony here today?

1 MR. EWALT: I'm going to instruct Professor
2 Milgrom not to answer questions about the substance
3 of communications with counsel.

4 BY MS. ABSTON:

5 Q. And you're going to follow your attorney's
6 instruction?

7 A. I guess so, yeah.

8 Q. Before the break we were talking about
9 DoubleClick; is that correct?

10 A. Yes.

11 Q. Okay. And we were talking about DoubleClick
12 in the context of your work with Yahoo from 2007 to
13 2008 or 2009 --

14 A. Yes.

15 Q. -- is that right?

16 A. Right.

17 Q. And so I think we left it discussing some of
18 the things you were hearing about DoubleClick's
19 products when you were at Yahoo in 2007.

20 Does that sound right?

21 A. Well, sort of, yeah. We were talking about
22 bid exchanges and Yahoo's effort to create one as
23 well.

24 Q. And I think you referred to DoubleClick as
25 being ubiquitous at that time.

1 Does that sound correct?

2 MR. EWALT: Objection to form.

3 THE WITNESS: I don't think that was my
4 word.

5 BY MS. ABSTON:

6 Q. Okay. Well, would you agree that
7 DoubleClick was ubiquitous at that time?

8 A. I remember that before I went to work for
9 Yahoo, I -- you know, their names were on ads. If
10 you paid attention, you could see "Served by
11 Double-Click," or words to that effect, on lots and
12 lots of ads at the time.

13 Q. Do you think they were -- do you think
14 that -- strike that.

15 Do you think DoubleClick was a market leader
16 at that time?

17 MR. EWALT: Objection to form.

18 THE WITNESS: "At that time." What time are
19 we talking about?

20 BY MS. ABSTON:

21 Q. Do you think that DoubleClick was a market
22 leader in 2007, when you were at Yahoo?

23 MR. EWALT: Objection to form.

24 THE WITNESS: It was certainly what we had
25 talked about at -- at Yahoo.

1 BY MS. ABSTON:

2 Q. Okay.

3 A. They were -- you know, that was a great
4 concern at Yahoo.

5 Q. Okay. Was there anyone else in the market
6 that you can recall at that time?

7 A. They were -- DoubleClick and the impending
8 acquisition by Google were -- were a big topic and,
9 you know, among competitors, it was the biggest
10 topic.

11 Q. But you can't recall any other members of
12 the market outside of DoubleClick in 2007?

13 A. "Members of the market." So, again, there
14 were other firms -- there were lots of other names
15 that were floating around. But DoubleClick was
16 creating an exchange, we're talking about, and Yahoo
17 wanted to create an exchange. And those were the
18 exchanges we were talking about.

19 Q. And was there ever discussion of Yahoo
20 trying to acquire DoubleClick?

21 A. Discussion of Yahoo wanting to acquire
22 RealNetwork, which was a different exchange.

23 Q. Okay. And -- all right.

24 Do you believe that -- that DoubleClick held
25 a monopoly in the market at that time?

1 A. I have no information about either the
2 market definition or the market shares at that time.
3 And RealNetworks was certainly a serious competitor
4 for DoubleClick, but I don't know what the shares
5 looked like.

6 Q. And why was DoubleClick a great concern at
7 Yahoo?

8 MR. EWALT: Objection to form.

9 THE WITNESS: There was already, you know,
10 discussion going on about, you know, a transformation
11 in -- in this method of selling remnant ads.

12 Remember that Yahoo was the largest online
13 publisher in the world at that time, and so if you're
14 a publisher, you're very concerned about the way you
15 conduct your sales, and their sales were mostly
16 direct sales, as was true of most publishers.

17 This was an important new way of -- of doing
18 it. DoubleClick was a leader. There was already
19 talk about, you know, the live bidding would be
20 coming down the pike. They were talking about
21 whether that was important or not.

22 It was clear that -- yeah, I mean, I could
23 talk for ages -- for hours about this. It was -- it
24 was -- there were lots of considerations going on.

25 ///

1 BY MS. ABSTON:

2 Q. Okay. And why did Google want to acquire
3 RealNetwork over DoubleClicks?

4 MR. EWALT: Objection to form.

5 MS. ABSTON: I'm sorry. Strike that.

6 Q. Why did Yahoo want to acquire RealNetworks
7 over DoubleClick?

8 MR. EWALT: Objection to form.

9 THE WITNESS: Yeah, at the time that -- that
10 I was there, this was -- you know, there was no
11 discussion of who they would acquire, that Yahoo was
12 already, you know, making a deal with -- I don't want
13 to recall the exact status of the deal -- was making
14 a deal with RealNetwork, and that was not -- who they
15 should make a deal with and why was not something
16 that was discussed while I was there.

17 BY MS. ABSTON:

18 Q. Okay. And have you ever met [REDACTED]?

19 A. No. Other than -- I take that back. I met
20 him very briefly for the first time in Virginia a
21 couple months ago.

22 Q. So I believe you're referencing that you may
23 have met [REDACTED] at the DOJ trial that took place
24 in the fall of 2024?

25 A. That's right. Just briefly, yes.

1 Q. And was he testifying at the DOJ trial?

2 A. Yeah, I exactly remember. Yes.

3 Q. Okay.

4 A. After his testimony, yes.

5 Q. After his testimony, okay.

6 But you've never done any work with [REDACTED]
7 [REDACTED] in any capacity in your career; is that right?

8 A. That's correct.

9 Q. And you didn't have any conversations with
10 him pertaining to the DOJ trial or the Eastern
11 District of Texas case?

12 A. No. Oh, was I -- sorry. No.

13 Q. And did you have any opinions at the time
14 about DoubleClick's business practices in 2007, when
15 you were at Yahoo?

16 A. No.

17 Q. Okay. And then you never met with any
18 DoubleClick executives?

19 A. No.

20 Q. Okay. And so let's -- let's go back to
21 talking more about the commercial advice that you
22 gave to Yahoo.

23 A. Yep.

24 Q. How would you define "commercial advice"?

25 A. Okay. Well, you're asking -- you asked the

1 question. I was going to ask you what you meant by
2 "commercial advice."

3 But the advice that I was giving -- let me
4 try to be helpful here. The advice that I was giving
5 concerned basically the evolutions that were taking
6 place at that time in Internet display advertising.

7 Q. Okay. Was this the first time you had ever
8 given advice relating to Internet display
9 advertising?

10 A. Commercial advice, yes.

11 Q. And so what specifically did you advise
12 Yahoo on?

13 A. Well, actually, you can read about that in
14 my published work. So you can see I have a paper
15 with Jon Levin, currently the president of Stanford
16 University, which was included in it a lot about what
17 we were doing.

18 The issues were what would happen as
19 targeting became more refined, how much value --
20 extra value would be created by -- by better
21 targeting, what problems might be created by better
22 targeting, what problems would be created internally
23 within Yahoo when it had competition between its
24 sales force and this alternative channel for selling
25 ad slots. Those things.

1 Q. Okay. And you mentioned Jon Levin. Did he
2 also give commercial advice to Yahoo during the same
3 time period that you were offering advice?

4 A. Yeah, we normally traveled together, John
5 and I. We were working as a team.

6 Q. Okay. And who else was on your team when
7 you were working at Yahoo?

8 A. No one else. It was -- well, the consulting
9 were Jon and me, just the two of us.

10 Q. And had you ever worked with Jon before?

11 A. Yes.

12 Q. Okay. In what capacity had you worked with
13 Jon Levin before you worked with him at Yahoo?

14 A. We had advised -- who were we advising? It
15 was Comcast, I believe. This was advise about
16 bidding in a spectrum auction.

17 Q. And so you would have been giving advice
18 with Jon Levin to Comcast prior to 2007?

19 A. Yes, I guess so.

20 Q. And that was auction advice?

21 A. Yes.

22 Q. Okay. And were you compensated for that
23 advice?

24 A. Yes.

25 Q. Who did you work with while you were at

1 Yahoo that was an employee of Yahoo at the time?

2 A. I'm sorry, I don't remember the names of the
3 people at that time.

4 Q. But did you have a direct report at Yahoo
5 that you provided with your insight or consulting
6 advice?

7 A. Yes. There was somebody who was in charge
8 of trying to develop the -- an ad network -- I'm
9 sorry, an ad exchange. My confusion here.

10 There was somebody who was trying to develop
11 an ad exchange, bringing over RealNetwork and
12 integrating Yahoo's very ample inventory into that,
13 that helped jump-start that -- that exchange.

14 Q. And did you continue to advice Yahoo in any
15 capacity after 2008 or 2009?

16 A. I don't recall doing any additional advise
17 for Yahoo after that.

18 Q. Okay. And do you know what came of Yahoo's
19 efforts to develop an advertising exchange?

20 A. I don't know any detail about what came of
21 the effort, no.

22 Q. And do you know if Yahoo runs an exchange
23 today?

24 A. I believe they don't, but I'm not a
25 hundred percent sure.

1 Q. Okay. You also mentioned that you have
2 provided commercial advice occasionally to OpenX; is
3 that correct?

4 A. Yes.

5 Q. Okay. And what is OpenX?

6 A. Well, at the time I was providing commercial
7 advice, it was an ad exchange.

8 Q. Okay. And when did you first start
9 providing OpenX with commercial advice?

10 A. I believe I've got the dates in my report,
11 and I -- rather than quoting them from memory, I'd
12 prefer to just quote them accurately.

13 Q. I will represent to you that in your report,
14 you state that you started occasionally advising
15 OpenX in 2009.

16 Does that sound right?

17 A. Possible. I just don't recall.

18 Q. Were there -- go ahead.

19 Was there ever a time that you were giving
20 commercial advice to both Yahoo and OpenX at the same
21 time?

22 A. No. That would have been why, probably, I
23 would have left Yahoo. But most likely, yeah.

24 Q. Do you remember who approached you from
25 OpenX?

1 A. It was Tim Cadogan.

2 Q. Okay. And how did he reach out to you?

3 A. I don't recall exactly how he reached out to
4 me. Yeah, I don't recall.

5 Q. And when you say "occasionally advised,"
6 what do you mean by that?

7 A. Well, they were located not far from Burbank
8 Airport, I remember, and I would go maybe every
9 quarter or every six months for a day. I would fly
10 down to their offices and discuss whatever issues
11 were on their mind at the time, and I was
12 following -- as the industry developed, there were
13 new challenges constantly being addressed.

14 They were trying also to understand what
15 policies others were doing and why they would be
16 doing it, and they would ask me for advice.

17 And we also spoke about -- I mean, that's --
18 yeah, occasionally advised. You asked what
19 "occasionally advised" meant. I answered the
20 "occasionally advised," yes.

21 Q. Okay. And you did that, and you
22 occasionally advised OpenX from 2009 until 2017; is
23 that correct?

24 A. Is that right? Are those the dates that are
25 in there? Okay, good.

1 Q. Do you think that it was -- do you think
2 that you provided OpenX with advice after 2017?

3 A. No. I stopped -- I remember stopping at
4 some point right around there, 2017, 2018. If I
5 wrote 2017, then that's when it was.

6 Q. Was there ever a time you were providing
7 OpenX with consulting advice while you were retained
8 as an expert for Google?

9 A. No. In fact, I remember that the reason I
10 stopped working at OpenX is I called Tim and said, I
11 really want to study cloud pricing. I'm going to go
12 do that at Google. I think it would be inappropriate
13 for me -- he tried to talk me out of it, I recall --
14 inappropriate for me to do both. So I'm going to
15 leave -- stop advising OpenX.

16 Q. Okay. And that was in your advising
17 capacity. But I want to try to clarify, were you
18 ever retained as an expert witness for Google while
19 you were also providing advice to OpenX?

20 A. Oh. Well, I'd have to look at dates. I
21 don't think so, but, you know, you're asking about
22 history from some time ago, and I'd need to look at
23 dates to be sure.

24 Q. We'll come back to that.

25 And during the time you were working at

1 OpenX, I believe that's when you patented some
2 auction design inventions.

3 Does that sound right?

4 A. Yes, it is right.

5 Q. Do you recall how many patents you were
6 associated with during your time at OpenX?

7 A. I think there was only one for OpenX --

8 Q. Okay.

9 A. -- I believe.

10 Q. And did you co-invent with others during
11 this time at OpenX?

12 A. Oh, I think we called them co-inventions,
13 yes. It was my idea that we developed, yeah.

14 Q. Who were your co-inventors?

15 A. Can we look at the list of whoever is listed
16 on the --

17 Q. We can go back to your CV if you want to.

18 A. My CV. Oh, this is my CV. That's right.
19 Yes, thank you.

20 Q. So we're going to go back to Exhibit 1.

21 A. And where is -- where are these patent
22 things?

23 There we go. With Steven Cunningham and
24 Marissa Beck.

25 Q. And after 2017, have you -- strike that.

1 Since 2017, have you ever provided OpenX
2 with any additional commercial advice?

3 A. No.

4 Q. And is the auction design related to the
5 patent that you had when you were at OpenX still in
6 use today?

7 A. I believe not, no.

8 Q. Okay. And so then you brought up that you
9 started as a research scholar at Google in 2017; is
10 that correct?

11 A. Well, I started talking to Google about
12 doing that. I don't remember exactly -- the year
13 that I started should presumably be in here
14 somewhere.

15 Q. And so who reached out to you about being a
16 research -- a visiting research scholar at Google?

17 A. I reached out to them. I was curious -- I
18 was curious about the operation of the cloud, and I
19 wanted to be able to have access to and study what
20 Google was doing in developing the cloud. So I
21 reached out to them.

22 Q. And what prompted your interest in the
23 cloud?

24 A. Oh, Amazon had tried to hire me, and I
25 learned about the Amazon Cloud then, and I was

1 fascinated. I thought that was a great idea, and
2 that the pricing issues were extremely complicated
3 for the cloud. So that's my thing.

4 You know, I've worked on problems that are
5 hard for other people. That's my comparative
6 advantage. And -- and I thought, well, you know,
7 Google is right here. Maybe I can learn about -- you
8 know, I decided not to work with Amazon, but maybe I
9 could find out what I needed to know at Google.

10 And they said, well, we can't give that to
11 an outsider, but we could arrange for you to be a
12 visiting scholar.

13 Q. Okay.

14 A. I said okay.

15 Q. And who did you reach out to at Google about
16 the visiting scholar potential?

17 A. I don't recall.

18 Q. And during that one-year time period that
19 you were a visiting research scholar at Google, did
20 you have an office on campus at Google?

21 A. I don't think it was as much as a year. I
22 think it was less than a year that I was at -- at
23 Google. And there was an office made available to me
24 on the Google campus, yes.

25 Q. Okay. And did you receive any sort of

1 compensation for your visiting research scholar
2 position?

3 A. I did, yeah.

4 Q. Okay. And what all did you -- strike that.
5 Did you have to apply to be a visiting
6 research scholar in any way?

7 A. I -- pardon me.

8 Did I have to apply? There were forms --
9 there was stuff I had to go through, and I don't
10 recall exactly what the hoops were.

11 I do recall that I had to -- had to attend
12 an orientation, you know, and learn about some of the
13 rules that applied, but I don't remember any detail
14 about that. Sorry.

15 Q. So while you were holding this position with
16 Google as a visiting research scholar, you were also
17 still a professor; is that correct?

18 A. Oh, yeah. I only went to -- I went to
19 Google about -- Stanford has rules about the limits
20 of outside -- limits my outside activity. And I
21 can't average more than a day a week.

22 And so I would -- I would go to Google a day
23 a week and -- and, you know, four days a week I was
24 on the Stanford campus.

25 Q. Okay. And that -- you went to Google a day

1 a week for less than a year?

2 A. Yeah.

3 Q. In that role?

4 Okay. And you received compensation?

5 A. Yeah.

6 Q. Was there a formalized contract dictating
7 your compensation?

8 A. Oh, I'm sure there was.

9 Q. Okay. And do you recall anything about your
10 compensation while you were a visiting research
11 professor at Google?

12 A. Oh, I recall a few details. We had to --
13 the fact that my health insurance came -- it made me,
14 you know -- my health insurance came through
15 Stanford. I wasn't supposed to get any -- any equity
16 compensation from Google. There were, you know, some
17 details. But I don't recall a lot about it.

18 Q. Okay. And so do you still advise -- strike
19 that.

20 Are you still in any way a research scholar
21 with Google at this time?

22 A. No.

23 Q. But you still consult different companies in
24 your personal capacity regarding online display
25 advertising industry; is that correct?

1 A. At -- right now, the last couple of years,
2 no. I mean, I'm -- as I say, I have this -- this
3 project has consumed a lot of my time.

4 Q. And did your compensation include the
5 benefits that are given to Google's employees, like
6 free lunch?

7 A. Free lunch was -- yes, I had access to the
8 lunchroom.

9 Q. Okay. Any other things that you can recall
10 you had access to?

11 A. For the most part, I didn't take Google
12 benefits because I was a full-time employee at
13 Stanford, and it was Stanford benefits that I had.

14 Q. And so outside of Yahoo, OpenX and Google,
15 have you advised any other companies on anything
16 relating to online display advertising, other than
17 those that we have discussed today?

18 A. Not in the modern era. Yes, I guess the --
19 I guess there was something, yeah.

20 Q. Okay. What can you recall?

21 A. This is before -- even earlier than this
22 stuff. The -- the online/offline, there was a
23 company in Washington State.

24 Q. Okay.

25 A. And I can't quite recall, but it was a very

1 early innovator in trying to help advertisers
2 maintain a portfolio of online and offline
3 advertising to help them more effectively target
4 customers. And I helped the -- I advised them. I
5 don't remember very much about that. I just remember
6 that there was such a project.

7 Is there anything else?

8 Q. I think we can move on.

9 A. Okay. All right.

10 Q. I want to hear about -- how did you become a
11 testifying expert?

12 A. How did I become a testifying expert? Let's
13 see.

14 Well, I think probably the first testimony
15 happened because of CRA. The -- for personal
16 reasons, my life changed in the early 1990s, and I
17 needed some additional income. And I made this
18 association with Charles River Associates where I
19 could do some consulting, which I had intended to be,
20 you know, auction-related consulting, and they
21 brought some cases to me, and they said, This seems
22 to fit your expertise. Would you like to do it? I
23 think those were my first -- first cases.

24 Q. And do you typically -- well, let's see --
25 strike that.

1 Were the first cases that Charles River
2 brought you back in the mid '90s, were you
3 representing companies?

4 A. Representing -- I'm not a lawyer.

5 Q. Strike that.

6 Were the first cases that Charles River
7 brought you back in the mid '90s, were you retained
8 by companies to offer your expertise?

9 A. Charles River was retained by companies. I
10 was working with Charles River at the time.

11 Q. Right.

12 A. I don't recall exactly that they -- no, I do
13 recall that I would -- that the payments came through
14 Charles River. I imagine that the entire contract
15 was probably through Charles River, and I was just
16 working for Charles River.

17 Q. Were you asked to offer opinions by
18 plaintiffs?

19 A. Sometimes, yes.

20 Q. Were you asked to offer your expert opinions
21 in the mid '90s by defendants?

22 A. Well, if we're going to talk about the
23 period in which I was asked to offer each opinion, I
24 would really need to go look at those cases again and
25 see what dates they were.

1 But there's -- I would say, you know, I was
2 asked to offer opinions by both plaintiffs and
3 defendants in general over a period -- over a period
4 of years.

5 Q. Okay. We will look into that in just a
6 little bit.

7 But would you consider testifying as an
8 expert witness to be your primary job?

9 A. No.

10 Q. At any point in time, has testifying as an
11 expert witness been your primary job?

12 A. No.

13 Q. Okay. At any point in time, has testifying
14 as an expert witness been your primary source of
15 income?

16 A. Well, I'd say over the last year, these
17 cases generated more income than my Stanford income.

18 Q. Okay. And how much of your income comes
19 from being a testifying expert -- or strike that.

20 How much of your income comes from being an
21 expert witness?

22 A. Okay. What -- how are we doing the
23 accounting here? I have -- how much of my income. I
24 get income from Auctionomics. I get income from my
25 direct billing. I get income from Stanford.

1 What do you want in the numerator, and what
2 do you want in the denominator for these things?
3 What are you asking?

4 Q. If you had to ballpark a percentage of your
5 income that comes from being an expert witness, what
6 would be that ballpark?

7 A. Okay. Well, in terms of direct charges, if
8 I combine the last few years, [REDACTED],
9 something like that.

10 Q. Has it ever been higher than that [REDACTED]
[REDACTED] [REDACTED]?

12 A. You know, again, no, I think that's probably
13 what the number has been that it would -- the number
14 we're talking about.

15 Q. From a percentage of time consumed, have you
16 ever spent more time -- strike that.

17 What percentage of your time is consumed
18 with expert witness work?

19 A. All my consulting work together, I try to
20 limit to an average of 20 percent, which is what my
21 contract with Stanford requires.

22 Q. And when you say "consulting work," you're
23 talking about economic consulting and -- economic,
24 nonlitigation consulting and litigation consulting?

25 A. Yeah.

1 Q. Okay.

2 A. That's why I do only one large project at a
3 time.

4 Q. Okay. So 20 percent direct, 20 percent
5 Stanford, and then the rest is Auctiononomics?

6 MR. EWALT: Objection to form.

7 BY MS. ABSTON:

8 Q. Is that what you --

9 A. Yes. So if we're talking about the -- yeah,
10 you asked my income. My income has lots of -- okay.
11 So I have Auctiononomics, and then I have -- you know,
12 [REDACTED] and I have -- I have --
13 you know, I'm 76 years old. [REDACTED]

14 [REDACTED]
15 I've got a lot of different sources of income, and
16 breaking it all down would be very hard for me to do.

17 Q. Okay. Let's move on. Let's talk about the
18 first time that you ever testified as an expert for
19 Google.

20 A. Uh-huh.

21 Q. Which I believe we have already discussed
22 today, you've had some previous times that you were
23 retained by Google. But do you recall the first time
24 that you were retained as an expert by Google?

25 A. Yeah, for a Google case, that was the --

1 that was the Woods litigation.

2 Q. Okay. So -- but were you -- have you ever
3 testified as an expert in any litigation that
4 involved Google prior to that time?

5 A. Not to my recollection.

6 MS. ABSTON: Okay. What I'm going to do is
7 let's pull out what is M-3, which I think we're going
8 to mark as Exhibit 3, maybe?

9 THE REPORTER: Correct.

10 MS. ABSTON: Okay.

11 (Exhibit No. 3 was marked.)

12 BY MS. ABSTON:

13 Q. And what I'm handing to you is a -- well, we
14 can come back to this, too. It's Appendix B, a list
15 of your materials relied upon.

16 And do you recognize this document?

17 A. Yes, it looks like the document that's at
18 the end of my report.

19 Q. And do you have any reason to dispute that
20 it's not a correct and accurate copy of all the
21 materials that you relied upon --

22 A. As far as --

23 Q. -- in forming your opinions in the report?

24 A. As far as I know, it's a correct and
25 complete list.

1 Q. So you now have as Exhibit 1 your Appendix A
2 to your report for your July 30th Eastern District of
3 Texas report.

4 A. Yes.

5 Q. And also before you, you have in front of
6 you your Appendix B which is your materials relied
7 upon, which is marked Exhibit 3.

8 MR. EWALT: Counsel, can we mark Exhibit 3?

9 MS. ABSTON: And I'd like to mark Exhibit 3,
10 which is your Appendix B of your materials relied --
11 which is your materials relied upon list.

12 BY MS. ABSTON:

13 Q. So you now have a full copy of the
14 appendices to your July 30th report.

15 A. All right.

16 Q. Let's locate your testimonial history list.
17 And I want to -- I think that may be on -- within
18 Exhibit 1.

19 At the very back, starting on page 471. Do
20 you see that?

21 A. 471. There we go, yeah. It lists nine
22 items, yes.

23 Q. Okay. And you have a subheading here that
24 says on Exhibit 1, "Expert Reports and Testimony,
25 2000 to Present."

1 Do you see that?

2 A. Yes.

3 Q. Okay. And so is this an up-to-date list of
4 all the cases that you've provided, deposition and
5 trial testimony, within over the last 24 years?

6 A. I hope so. Let's see. Just a moment.

7 Q. Okay.

8 A. It looks that way. Just a second. And is
9 this -- is it up to date?

10 It goes through the date at which I
11 submitted this report, yeah.

12 Q. Okay. We will come back to that.

13 A. Sure.

14 Q. I want to -- I want to look with you at
15 what's No. 5 on this list. And this is a case -- can
16 you read what No. 5 says?

17 A. Oh, yes, right. There you go. Yeah.

18 Q. And does this refresh your recollection as
19 being the first case in which you were ever involved
20 as -- ever involved in that involved Google?

21 A. It does refresh my memory, yes.

22 Q. Okay.

23 A. So there was another case here that is --

24 Q. Okay. And are you aware of the date of this
25 case?

1 A. No. If I were, it would be on there.

2 Q. Okay. There's a handful of litigations on
3 this list that do not have a date associated with it,
4 but it looks like this No. 5, "Bid for Position vs.
5 Google," falls after a March 2006 entry and prior to
6 a January 2010 entry.

7 Do you see that?

8 A. I see that, yes.

9 Q. Okay. So this "Bid for Position vs. Google"
10 case may have taken place in between March 2006 and
11 January 2010. Does that appear right?

12 A. It's possible, yeah.

13 Q. And who retained you in that matter?

14 A. I remember the title of this. I don't
15 remember anything about this case. I think I was
16 very, very briefly involved.

17 Let's see. This case, "Bid for Positions,"
18 was about a patent, right? Let me just try -- I'm
19 racking my brain trying to remember details, so
20 please give me a moment.

21 Q. And I can ask you some questions, see if
22 some things come back.

23 So this case, it appears, was in the Eastern
24 District of Virginia. Does that sound correct?

25 A. That's what it says here, yes.

1 Q. Okay. Do you recall if you were retained by
2 Google for this?

3 A. Gosh, I barely remember this case. But I
4 wasn't -- I'm pretty sure I would remember if I was
5 retained by Bid for Position, and it only leaves two
6 options here. So I guess probably I was retained by
7 Google.

8 Q. Is there anything on this, what I'm going to
9 call your testimonial history list here, in
10 Exhibit 1, where you appeared as a fact witness in
11 any way?

12 A. No.

13 Q. Okay. So we know that you were an expert
14 witness for either Bid for Positions or Google in the
15 Eastern District of Virginia --

16 A. It was not Bid for Position.

17 Q. Okay. So you were --

18 A. Unless by process of elimination.

19 Q. Okay. So the first time that you ever were
20 retained by Google was No. 5 on Exhibit 1, "Bid for
21 Position vs. Google" --

22 A. Yes.

23 Q. -- in the Eastern District of Virginia.

24 A. Okay.

25 Q. And you were retained as an expert witness

1 in that matter?

2 A. That's what my CV says, yes.

3 Q. Okay. But you can't recall, as you sit here
4 today, what the subject matter of that case was?

5 A. No. It had to do -- you know, I have little
6 snippets of memories, so I can say a little bit about
7 that, if you wish.

8 Q. Yes. What do you recall about that case?

9 A. So this was about the search -- as I recall,
10 search -- at the time search ads were mixed in
11 with -- or could have been mixed in with what are
12 called organic ads, and this had to do with search
13 advertising.

14 And Bid for Position had said instead of
15 listing ads by relevant, they had a patent that said
16 you could list ads according to who paid the most.
17 And a question was -- there was a question related to
18 whether somebody -- apparently Google, from the title
19 here -- was in violation of that patent.

20 And whether what was -- whether the
21 listings -- Google, of course, at the time
22 maintained -- separated its organic listings from the
23 commercial listings and -- you know, and its position
24 was that that's what it was doing, that that wasn't
25 the same thing. So --

1 Q. And so --

2 A. -- something like that.

3 Q. -- did you issue an expert report in this
4 matter?

5 A. I don't recall. Probably not. I'm guessing
6 here that not, because I'm pretty sure that if I had,
7 I would remember something about it.

8 Q. Okay.

9 A. This looks like something that -- yeah.

10 Q. And then looking at this same list in
11 Exhibit 1, looking at No. 8, it says "Rick Woods vs.
12 Google." Is that the case that you have been
13 referring to today as "Woods vs. Google"?

14 A. Yes.

15 Q. And what's the subject matter of that case?

16 A. That was related to search advertising.

17 Q. Okay. And I think you previously testified
18 that that may be an ongoing litigation; is that
19 correct?

20 A. Yes.

21 Q. And so what is the current status of that
22 litigation?

23 A. I understand that Rick Woods was replaced
24 by -- this was a class action. And there was some
25 problem with Rick Woods, and he was replaced by

1 somebody else. And -- and that case will go to
2 trial.

3 Q. Okay. And did -- what -- what dates were
4 you involved with this matter?

5 A. Yeah, good question. So this was -- this
6 has got to be a period that's pre-Covid. All I can
7 tell you is that this must have been pre-Covid.

8 Q. And by "pre-Covid," you mean before 2020?

9 A. Yes, before 2020. Yes.

10 Q. And did you issue a report in this case?

11 A. Yes, I did.

12 Q. Okay. [REDACTED]

[REDACTED]

[REDACTED]

15 Q. Okay. And did you issue a supplementary
16 report in this matter?

17 A. I do not recall a supplementary report.

18 Q. And did you sit for a deposition in this
19 matter?

20 A. I did.

21 Q. Okay. Did you sit for multiple depositions?

22 A. One.

23 Q. Okay.

24 A. One only.

25 Q. Okay. I'm going to hand you what I will

1 mark as Exhibit 4, I believe.

2 (Exhibit No. 4 was marked.)

3 BY MS. ABSTON:

4 Q. In addition to an expert report in this
5 matter, do you recall issuing a declaration?

6 It's M-27.

7 And I'm going to mark your declaration in
8 the Woods vs. Google case as Exhibit 4.

9 THE REPORTER: We just marked 4.

10 MS. ABSTON: I mean, that's what it is.

11 MR. EWALT: Just for the record, it
12 doesn't -- it appears to be more than a declaration.

13 MS. ABSTON: Yes. So we will start, just
14 for context, I believe -- I believe this is a motion
15 to strike -- Google's motion to strike expert
16 reports.

17 THE WITNESS: Okay.

18 MS. ABSTON: Just for completeness, we have
19 included that.

20 Q. And your declaration appears to be either
21 Exhibit 16 or 17, so starting about halfway back --
22 there's not page numbers -- you will see a May 31st,
23 2018, declaration of Paul Milgrom.

24 Do you see that?

25 A. I'm looking for it.

1 Q. It's towards -- about three pages from the
2 back.

3 A. Oh, about three pages from the back?

4 Q. Uh-huh.

5 A. Is there --

6 MR. EWALT: Yeah, I mean, I'll just state
7 for the record here this appears to be a printout of
8 Docket Entry 44- -- or excuse me -- a partial
9 printout of Docket Entry 442 in Case No. 5:11-CV-1263
10 in the Northern District of California, and it
11 appears that it's Docket Entry 442, 442-1, 442-17.
12 So missing a few of the dockets.

13 MS. ABSTON: Yeah. I'm happy to represent
14 to counsel that this is just -- we wanted to provide
15 context for what I believe is Exhibit 16, the
16 Declaration of Paul Milgrom dated May 31st, 2018,
17 that's discussed within the attachments to Google's
18 motion to strike the expert report.

19 Q. But, Dr. Milgrom, do you see your
20 declaration on May 31st, 2018?

21 A. Is it May 31st? I see that it's filed
22 later.

23 Q. Yes, sorry. Right.

24 On that page, do you see that there's a date
25 on -- under the words "Declaration of Paul Milgrom"?

1 A. Yeah, there it is. May 31, 2008.

2 Q. And if you flip to the last page, the very
3 last page -- or the second-to-the-last page, is that
4 your signature?

5 A. It is, yes. That's my signature.

6 Q. And so you also -- so in addition to
7 submitting an expert report, you also submitted a
8 declaration for the Woods v. Google matter; is that
9 correct?

10 A. It appears to be. I'm sorry, my memory of
11 this is weak.

12 Q. That's okay.

13 And do you remember anything else associated
14 with the Woods vs. Google matter, anything that
15 stands out to you?

16 A. As I have this in front of me, you can see
17 that I talk about their misunderstanding of how
18 second price options work. That seems to be what the
19 whole document is about. I'm testifying about how
20 second price options work and how their
21 understanding -- their lack of understanding
22 undermines the work I did.

23 Q. Okay. And this case hasn't gone to trial,
24 has it?

25 A. Not yet.

1 Q. Do you know when it's going go to trial?

2 A. Early next year. I don't remember the
3 dates.

4 Q. Have you been asked to testify at that
5 trial?

6 A. I've been asked, yes.

7 Q. And do you know if that case is proceeding
8 to trial in the Northern District of California?

9 A. I believe so, yes.

10 Q. Okay. And do you know if that case is going
11 to take place -- or that trial is going to take place
12 in the beginning of 2025?

13 A. The first quarter of 2025 is my
14 understanding.

15 Q. Okay. Are you aware if your opinions have
16 been limited in any way in that matter?

17 A. I -- I don't know anything about that. I'm
18 sorry.

19 Q. Are you aware if any of your opinions that
20 you have offered in that matter have been excluded?

21 A. I'm not aware of any that have been
22 excluded.

23 Q. Okay. We can set that aside.

24 Okay. So on October 12th, 2020, you were
25 awarded a Nobel Prize; is that correct?

1 A. October 12th as well. That might have been
2 the announcement date. December 10th, 2020, I was
3 awarded a Nobel Prize.

4 Q. And what is the full title of the award you
5 received in 2020?

6 A. Oh, it's Bank of -- it's said in Swedish,
7 which I can't pronounce. So it's the Bank of Sweden
8 Prize in Memory of Alfred Nobel.

9 Q. And for what work did you win the 2020 Nobel
10 Prize?

11 A. Well, the short citation is something like
12 "for improvements to auction theory and inventions of
13 new auction methods." And I co-own that prize with
14 Professor Robert Wilson.

15 Q. And I think you've mentioned Professor
16 Robert Wilson before. He's someone who dates back to
17 your early days at Sanford; is that correct?

18 A. He was my dissertation advisor, and
19 currently he's the neighbor who lives across the
20 street from me.

21 Q. Okay. How much time do you believe went
22 into winning the Nobel Prize?

23 A. I don't understand what that means. I
24 didn't put any time into winning the Nobel Prize.
25 Zero. I just did my work.

1 Q. How much time or how many -- strike that.

2 How many years of work do you think went
3 into winning the Nobel Prize?

4 A. Well, I started working on auctions in
5 graduate school, and, you know -- in, let's say,
6 1976, 1977, and I had worked on them on and off that
7 entire period. So, you know, 47 years.

8 Q. Needless to say, decades and decades leading
9 up to your Nobel Prize work?

10 A. Yep.

11 Q. And did you write your Nobel Prize
12 submission in its entirety?

13 A. My Nobel Prize submission?

14 MR. EWALT: Objection to form.

15 THE WITNESS: I don't understand what "my
16 Nobel Prize submission" is.

17 BY MS. ABSTON:

18 Q. Did you write any sort of Nobel Prize
19 submission in any way?

20 A. Okay. "Submission" is the word I am
21 struggling with here. So I'm --

22 Q. Okay. Did you --

23 A. I wrote things for them that I was asked to
24 write. One was a history. Yeah, I mean, basically
25 the longest thing I wrote was a history that they

1 asked for, they asked me to write.

2 Q. What was the second thing that they asked
3 you to write?

4 A. What was the second thing they asked me to
5 write? I'm sorry. That's -- I'm also blanking on
6 that. I'm sorry, I don't recall.

7 But the -- the substantive thing, the long
8 thing, was the -- one was -- I guess one of them was
9 related to research and one of them was sort of a
10 biography that was not related to research, but just
11 about my life.

12 Q. And are those items public?

13 A. Yeah, the Nobel Prize --

14 Q. Okay.

15 A. Probably on the Nobel Prize website.

16 Q. Both of those documents that you wrote are
17 publicly accessible?

18 A. They were intended to be, yes.

19 Q. Okay. And outside of Professor Wilson, who
20 assisted you with your Nobel Prize work?

21 A. Well, you know, I wrote a lot of papers, and
22 a lot of them were cited. So there were -- some of
23 my papers were singly authored, but mostly not.

24 I wrote a lot of different papers with
25 Professor Robert Weber, who was -- who is retired

1 now, was at Northwestern University. I wrote with
2 Professor Larry Glasten. I wrote with Professor Ilya
3 Segal. These are papers I wrote on auctions and
4 market design.

5 And I wrote -- who else did I write with?
6 Professor Larry Ausubel and Professor Peter Crampton.

7 The -- you know, if you go over my CV, just
8 look at the co-authors, and those are the people I
9 wrote with.

10 Q. There wasn't any sort of company, like
11 Auctionomics, that did anything to contribute to you
12 winning your Nobel Prize?

13 A. Well, it says in the -- you know, it says
14 "Inventions of New Auction Methods," and, yeah,
15 the -- Kevin Leyton-Brown and Ilya Segal were working
16 with me -- I'm naming individual names because that's
17 how, you know, we usually think about these things.

18 But that work, you know, the work that won
19 me the Nobel Prize -- that also won me an Emmy, by
20 the way. I now remember that I have to add the Emmy
21 to my CV. I have an Emmy award for the work on
22 the -- for much the same work.

23 That work was done through Auctionomics, but
24 I'm now naming the individuals who were the key
25 individuals.

1 Q. Okay. So, just to clarify, there were some
2 individuals who may be independent contractors with
3 Auctionomics that did assist you in some of the work
4 that led up to your Nobel Prize?

5 A. Yeah.

6 Q. And they also assisted you in some of the
7 work that may have won you an Emmy for --

8 A. It wasn't actually -- Auctionomics won the
9 Emmy for the work that -- the work on the broadcast
10 incentive option reorganized the whole television
11 industry. They decided that was a big technical
12 contribution to the television industry and awarded a
13 technical Emmy, as it's called, to Auctionomics for
14 that, which I have a statuette now.

15 Q. Cool. Do you recall the year that
16 Auctionomics was awarded an Emmy?

17 A. It was just a couple months ago. October
18 2024. That's why it's not yet on the CV.

19 Q. Okay. And for the submission to the Nobel,
20 did you perform all of those calculations yourself?

21 A. Submission to the Nobel. You keep talking
22 about "submissions to Nobel." You know, I don't even
23 find out that I'm nominated. Their entire process is
24 secret. I made no submission. Everything was
25 done -- anything that I submitted was after the prize

1 was awarded. So I'm not sure that's what you mean
2 by -- you know, I didn't apply for a Nobel Prize.

3 Q. I think you refer to the first document, the
4 longest thing that you wrote, was a history; is that
5 correct?

6 A. I wrote a history. I wrote -- you know, so,
7 again, I wrote a biographical piece and a piece about
8 the research. And I wrote those myself.

9 Q. Okay. For your -- for your piece about the
10 research, did it include any sort of calculations
11 within it?

12 A. Numerical calculations, no.

13 Q. Okay. And did your piece about the research
14 include detailed methodology of how you were coming
15 to your conclusions?

16 MR. EWALT: Objection to form.

17 THE WITNESS: Reasonably detailed. It's
18 less -- it was intended for public consumption, so
19 less detailed than the papers themselves. But it --
20 more than anything else, it was the thread, it was
21 the themes that I worked on and how they evolved and
22 why those questions were open questions at the time
23 and how I resolved them. But not in the same level
24 of detail as a research paper.

25 ///

1 BY MS. ABSTON:

2 Q. Was that methodology that you detailed in
3 your writings --

4 A. Okay. I'm sorry.

5 Q. -- dissimilar from what your methodology is
6 in their July 30th report?

7 A. "In their July 30th" -- what --

8 Q. In your July 30th report.

9 MR. EWALT: Objection to form.

10 THE WITNESS: Is it dissimilar?

11 MS. ABSTON: Yes.

12 THE WITNESS: That is in terms of the level
13 of detail and the nature of the argumentation,
14 there's a lot of similarity, I would say.

15 BY MS. ABSTON:

16 Q. Did you have any assumptions that were
17 within your writing that you sent to those selecting
18 the Nobel?

19 A. Oh, I'm sorry.

20 Did I have any assumptions in my -- so --
21 yeah, assumptions are stated, you know, along with
22 the conclusions that come from them. So yes.

23 Q. Okay. And how did you confirm your
24 assumptions were accurate?

25 A. So in economic theory, confirming your

1 assumptions are accurate is -- it's not the same
2 procedure as -- as here. Often the point of -- of an
3 economic -- of a work in economic theory is to
4 isolate an effect. And when you're isolating an
5 effect, you make an assumption that other effects are
6 absent, and you don't confirm that those are correct
7 because they are generally not correct.

8 Rather, I might want to know whether, for
9 example, that what we call the -- I could -- it's
10 very difficult to go through examples briefly here in
11 this, given the length of time.

12 But whether -- I might assume in economic
13 theory that some market is perfectly competitive and
14 ask what effect taxes would have, even though markets
15 are not generally perfectly competitive, and then
16 adjustments are made after the fact.

17 So we don't -- we don't make assumptions and
18 then confirm them in general published economic
19 theory. It's a different process.

20 Q. And were you asked to write a lecture
21 relating to your Nobel?

22 A. I think I was, actually, now that you
23 mention it.

24 MS. ABSTON: Okay. I'm going to mark this,
25 I think, as Exhibit 5.

1 I'm going to hand you what appears to be
2 your prize lecture from December 7th, 2020.

3 (Exhibit No. 5 was marked.)

4 BY MS. ABSTON:

5 Q. Can you look at that and see if you
6 recognize that document?

7 A. Yes, it's called "The Prize Lecture."

8 Q. And this is different from the piece that
9 you were asked to write about your research; correct?

10 A. That's all --

11 Q. And this is Tab M-29. Sorry.

12 A. There we go. Look at that. This may
13 actually be -- let's see.

14 Q. You can see here that the title is "Auctions
15 Research Evolving: Theorems and Market Designs."

16 Do you see that?

17 A. Yes. Right. And you'll notice the
18 asterisked footnote that this isn't exactly the
19 lecture I delivered. This is the paper that expands
20 on my lecture that I had delivered during the Nobel
21 Prize week.

22 Q. Okay. Do you believe this may be the piece
23 you were asked about, to write about your research?

24 A. Yes, I think this may be the piece that --
25 after I expanded on the lecture, it may be that

1 piece.

2 Q. Okay. And you created this document in its
3 entirety; is that correct?

4 A. I did, yes. As it explains at the bottom, I
5 think Andrew Vogt, Martin Bichler, and Gregor Schwarz
6 for comments and suggestions. I shared a draft with
7 them and got collegial comments.

8 MS. ABSTON: And I think the reporter wants
9 to make sure we have marked this as Exhibit 5.

10 Q. And so what aspects of this prize lecture
11 are incorporated into your July 30th Eastern District
12 of Texas report?

13 A. I would need to reread the entire lecture to
14 do that. I think this is about everything that I did
15 that led to my prize. And creating a mapping is not
16 something -- between this and my July report is not
17 something I can do offline in a few moments.

18 Q. Okay. But there's aspects of your Nobel
19 Prize lecture that are incorporated into how you form
20 your opinions in your July 30th report here?

21 A. Yes. Yes.

22 Q. Okay. And when you gave your lecture, I
23 believe you stated in December 2020, did Professor
24 Wilson also give a lecture?

25 A. Professor Wilson also gave a lecture, yes.

1 Q. Okay. Did you both talk about the same
2 subject matter of winning the Nobel Prize?

3 A. Well, in that sense, that it was both about
4 winning the Nobel Prize, he talked about his
5 research; I talked about my research. These are
6 largely about the research that we did.

7 What was in common between us was that we
8 both worked on the 1993/94 US FCC spectrum auctions,
9 and that we worked on some of the same topics. My
10 early research was an offshoot of his research. So
11 we would have spoken about different things in his
12 lecture and my lecture.

13 Q. Did you review his lecture before he gave
14 it?

15 A. Did I what?

16 Q. Did you review your lecture before he gave
17 it?

18 A. No.

19 Q. Did he review your lecture before you gave
20 it?

21 A. No.

22 MS. ABSTON: Okay. I think we might be at a
23 stopping point for lunch, if we want to go off the
24 record.

25 THE VIDEOGRAPHER: The time is 12:48 p.m.

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1 Pacific Time. We are going off the record.

2 (Lunch recess taken at 12:48 p.m.)

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1 AFTERNOON SESSION

1:36 P.M.

2 --o0o--

3 THE VIDEOGRAPHER: The time is 1:36 p.m.
4 Pacific Time. We are back on the record.

5 BY MS. ABSTON:

6 Q. Okay, Dr. Milgrom. Before we took a break,
7 we were talking about 2020, when you won your Nobel
8 Prize.

9 Do you recall that?

10 A. I do.

11 Q. And before we got back into things, did you
12 speak with counsel over the lunch break?

13 A. I spoke just to chat.

14 Q. And did you talk about the content of your
15 testimony today?

16 A. No.

17 MR. EWALT: I'm going to --

18 THE WITNESS: Sorry.

19 BY MS. ABSTON:

20 Q. And we're going to try to slow it down so
21 that Sandy doesn't kill us.

22 A. Okay. I will slow it down.

23 Q. I want to talk to you about the additional
24 times that you have been retained by Google to offer
25 your expert testimony.

1 A. Okay.

2 Q. And so we've mentioned these two already
3 today, but just so that the record is clear, we've
4 looked at Exhibit 1, which has your testimony
5 history, right, and we have talked about one matter
6 at No. 5, which was Bid for Position vs. Google.

7 A. Yes.

8 MR. EWALT: Objection to form.

9 BY MS. ABSTON:

10 Q. Is that correct?

11 MR. EWALT: Objection to form.

12 THE WITNESS: Let's take a look at -- where
13 is it?

14 BY MS. ABSTON:

15 Q. On page 472 of Exhibit 1.

16 A. I'm looking in the wrong place.

17 Page 472, it's the last page, right?

18 Q. Yes.

19 A. Okay. What are we looking at now?

20 Q. I believe we have covered testifying
21 today -- scratch -- strike that.

22 During your testimony today, you discussed a
23 case when you were retained by Google that was Bid
24 for Position vs. Google, No. 5 on your --

25 A. Yep.

1 Q. -- list. Is that correct?

2 A. Yeah, we have talked about that.

3 Q. And then the second time you were retained
4 by Google to offer expert testimony was No. 8 on this
5 list, Rick Woods v. Google.

6 Do you see that?

7 A. Yes. It was Rick Woods v. Google at that
8 time, yes.

9 Q. Okay. And both of those last dates, that we
10 were able to previously discuss some date ranges; is
11 that correct?

12 A. We have, yes.

13 Q. Are you able to clarify any -- any more on
14 the potential dates for those matters?

15 A. No, I haven't looked at them. Yeah.

16 Q. So if we look at No. 9 on this list, on
17 Exhibit 1, that appears to be what we have
18 established and agreed upon very early on in your
19 testimony today what we call "the DOJ case." Does
20 that -- is that correct?

21 A. Yes. Yes.

22 Q. Okay. So it's United States, et al., vs.
23 Google, and it's -- there's a date of January 2024.
24 Do you see that?

25 A. Uh-huh.

1 Q. Okay. And for the January 2024 date, was
2 that the date that you were retained by Google?

3 A. I don't recall.

4 Q. Okay. So for this list, when you have dates
5 that appear next to these case captions, is that your
6 retention date?

7 A. Good question about how I create it. My
8 recollection of how I created it was searching for
9 invoices. I haven't done a lot of expert witness
10 testimony, and I wanted to figure out which cases I
11 had testified in, so I did a bunch of searching
12 through invoices.

13 It's possible that that's the first invoice
14 that went out that was related to this case. So that
15 may be what it's there about.

16 Q. Well, were -- because you -- okay. Strike
17 that.

18 A. So that would correspond to your conjecture.

19 Q. What's your understanding of the relevant
20 claims at issue in the DOJ trial?

21 A. They're primarily anti-monopolization
22 claims.

23 Q. Okay. And have you reviewed anything
24 related to the DOJ trial since you testified in
25 Virginia?

1 A. Since I testified in Virginia? No, not
2 anything specifically. Let me just make sure that's
3 true.

4 I don't believe I have looked at anything
5 specifically about the DOJ trial, no.

6 Q. And have you been keeping up with any news
7 sources reporting on the DOJ trial?

8 A. I have looked at some news sources that
9 appeared immediately after my testimony.

10 Q. Okay. And which news sources was that --
11 did you look at?

12 A. Oh, these were things that were stuck in
13 front of me. So I wasn't actually searching for news
14 sources. There was somebody who had something -- I
15 guess there's a blog or a website, something called
16 "Big Tech on Trial."

17 And then my partner, Silvia, managed to get
18 some interviews that -- well, she's -- does the
19 marketing for Auctionomics, and it showed the
20 interviews.

21 Q. And to your knowledge, have any of your
22 opinions been excluded in the DOJ trial?

23 A. To my knowledge, no.

24 Q. Have -- to your knowledge, have any of your
25 opinions been limited in the DOJ trial?

1 A. I have not seen anything about that, no.

2 Q. Okay. Were there any motions in limine
3 relating to your testimony in this DOJ trial?

4 A. Any motions what?

5 Q. Were there any motions in limine that you
6 are aware of that were relating to your testimony in
7 the DOJ trial?

8 A. Motions in limine, is that what you said?

9 Q. Yes.

10 A. What's that mean? I don't know what that
11 means.

12 Q. Have you reviewed any trial transcripts from
13 the DOJ trial?

14 A. I have not. Not subsequent to my testimony.

15 Q. Prior to your DOJ trial testimony, did you
16 review any trial transcripts?

17 A. I looked at a little bit. Yeah.

18 Q. Do you recall which trial transcripts you
19 reviewed prior to your DOJ trial testimony?

20 A. Yeah, I think -- gosh, it's -- this is all
21 that was -- it was all crammed together. But I think
22 I looked at [REDACTED], who
23 was -- added some detail that I hadn't heard before,
24 and I think I looked at that. That's all I remember,
25 as I sit here.

1 Q. Do you recall which case you began working
2 on first? Was it the DOJ trial or the Eastern
3 District of Texas case?

4 A. I think the first complaint I saw was the
5 Texas case.

6 Q. Okay. And that's the one that we've
7 established was in 2020 at some point; is that
8 correct?

9 MR. EWALT: Objection to form.

10 THE WITNESS: No. I don't think so.
11 This -- we're talking about this -- this case?

12 BY MS. ABSTON:

13 Q. Yes.

14 Do you have a date that you believe you
15 first saw the complaint for this case, for the
16 Eastern District of Texas?

17 A. I don't have a date in mind, but I don't
18 think it was as early as 2020, no. I don't think so,
19 anyway.

20 Q. Okay. I will represent to you that this
21 case was filed in 2020 --

22 A. Yeah.

23 Q. -- for the first complaint. And then I
24 believe, as you discussed earlier today, there were
25 other amended versions of the complaint that you may

1 have seen; is that correct?

2 A. Yeah, I remember that. I think it was the
3 fourth version that I saw, yeah.

4 Q. So I think you're referencing the Fourth
5 Amended Complaint, which I believe is May 2023. But
6 we will get into that a little bit later.

7 So -- but are you able to recall when the
8 DOJ complaint was filed?

9 A. I don't recall.

10 Q. Okay. Do you recall which one -- so, strike
11 that.

12 Do you recall which complaint you saw first,
13 as we sit here today?

14 A. Yeah, I believe that I saw the Texas
15 complaint first.

16 Q. Okay. And once you saw the complaint, did
17 you immediately begin working on your report for the
18 Eastern District of Texas case?

19 A. No.

20 Q. Okay. Were you retained and then
21 immediately given the Eastern District of Texas
22 complaint?

23 A. Well, again, my best recollection -- I mean,
24 I'd be constructing this. I'm not sure I can give
25 you reliable testimony on the process of how that --

1 of how that happened.

2 Q. Okay. So you're unclear, as you sit here
3 today, on if you were -- when you were given the
4 Eastern District of Texas complaint?

5 A. I would think that in my best
6 recollection -- and this is partly based on what my
7 ordinary process would be, which I'm going to assume
8 that I followed, since I don't recall exactly.

9 But on what my ordinary process would be is,
10 let's see what this complaint is and see if it's in
11 my -- if it's consistent with my expertise. Let's
12 make sure it's not creating any conflicts for me.
13 And that I would have looked at that before I ever
14 had a contract.

15 That's my -- that's what I believe I would
16 have done. That's what I would normally expect
17 myself to do. And so I'm going to -- and so this
18 isn't exactly a recollection. But if I was trying to
19 reconstruct what happened, that would be my best
20 reconstruction.

21 Q. Okay. And do you recall testifying that you
22 began working on the DOJ matter in January 2023?

23 A. I think that's when I began testifying in --
24 let's see. The DOJ matter in January 2023. Did I
25 testify that? Again, I'm construct -- dates -- I'm

1 having trouble with dates here today.

2 Q. Do you have any reason to dispute that you
3 began working on the DOJ case in January 2023?

4 A. Well, I'm -- as I look at Item 9 here, it's
5 got a date of January 2024 on it, which is
6 probably -- probably related to the first billing
7 date, or something.

8 I'm sorry, I -- I don't have --

9 Q. We can pull it out --

10 A. -- any reason -- I -- you know, I'm sorry.
11 I can't do this from memory.

12 MS. ABSTON: Okay. So let's pull -- let's
13 go ahead and get out M-8, which we're going to mark
14 as Exhibit 6. Hold on one second.

15 (Exhibit No. 6 was marked.)

16 BY MS. ABSTON:

17 Q. Okay. I am handing you what is marked as
18 Exhibit 6.

19 A. Sounds right, yeah.

20 Q. This is your March 4th, 2024, DOJ deposition
21 transcript.

22 A. Oh, I see. Okay. Thank you.

23 Q. Have you reviewed this previously?

24 A. My deposition transcript. Just for
25 accuracy, yes, I have reviewed it immediately after

1 the deposition.

2 Q. Okay. And if you flip to --

3 A. This is March 2024. Okay.

4 Q. Yes. So, yeah, to orient us -- and we can
5 walk back a little bit to when you -- I believe --
6 well, strike that.

7 So if we look at page 86, I believe you're
8 asked, "When did you first start working on this
9 matter?" on line 7.

10 A. Okay. Hold on.

11 Q. Let me know when you're there.

12 A. 86, line 7.

13 Q. Do you see that?

14 A. Okay. Yeah, around January 2023, it says.
15 Okay.

16 Q. Yeah. And so you answer on line 9, "I think
17 this is around January 2023. Isn't that when the
18 complaint was filed? I think about that."

19 Do you see that?

20 A. Yeah, I see that.

21 Q. So does this refresh your recollection on
22 when you began working on the DOJ case?

23 A. It refreshes what I -- yeah, it refreshes
24 what I said, anyway, and I trust my --

25 Q. Okay.

1 A. Yep.

2 Q. So in January 2023, we've established the
3 DOJ complaint was filed, and you were retained by
4 Google to offer expert testimony in the DOJ case.

5 A. Okay.

6 Q. Is that correct?

7 A. Yes.

8 Q. Okay. And so when you began -- did you
9 begin working on your report immediately in January
10 2023, when you were retained?

11 A. I don't recall when I began working on my
12 report or how much time I spent at the beginning. I
13 think probably the first thing we would have done was
14 assemble a team.

15 Q. Okay. Do you recall when you assembled a
16 team for the DOJ matter?

17 A. I don't recall. But it likely wouldn't have
18 taken long.

19 Q. And so do you recall when you signed a
20 protective order in relation to the DOJ case?

21 A. I don't recall.

22 Q. Okay. And do you recall when you were given
23 an assignment in the DOJ case?

24 A. I don't remember dates, no. Sorry.

25 MS. ABSTON: Okay. So let's go ahead and

1 see if this helps. We're going to pull out M-6,
2 which we're going to mark as Exhibit 7.

3 (Exhibit No. 7 was marked.)

4 MS. ABSTON: So I am going to hand you M-6,
5 which we're going to mark as Exhibit 7.

6 BY MS. ABSTON:

7 Q. And can you read that first page for me
8 here?

9 A. This one is for me, and I will get a marking
10 on it?

11 Q. Yes.

12 A. And you want me to read what?

13 Q. I just -- do you recognize that this -- on
14 the first page is your January 23rd, 2024, DOJ expert
15 report?

16 A. Yes, that's right. It is.

17 Q. And can you flip to the back and make sure
18 that it includes all of the related appendices.

19 A. It looks like it goes all the way to the
20 end.

21 Q. Okay. I think the last page should have a
22 Bates number at the bottom right-hand corner that
23 ends in -2190.

24 Do you see that?

25 A. Yes, I see that.

1 Q. Okay. And so I believe your signature is on
2 the page that ends in the Bates No. -22158.

3 A. There it is.

4 Q. Okay. And you recognize that as your
5 signature?

6 A. That's one version of my signature, yes.

7 Q. Okay. So that -- that should help us a
8 little bit with the timeline here.

9 So you were retained in the DOJ matter in
10 January 2023.

11 A. Uh-huh.

12 Q. You issued a report in -- on January 23rd,
13 2024.

14 A. Okay.

15 Q. Is that correct?

16 A. It looks that way.

17 Q. Okay. So this was approximately six months
18 before you issued your expert report here in this
19 case?

20 Does that sound correct?

21 A. Approximately.

22 Q. Okay.

23 A. I don't have those dates either.

24 Q. Okay. And when was the last time you've
25 seen a copy of your DOJ case expert report that we

1 have marked as Exhibit 7?

2 MR. EWALT: I'm going to object and instruct
3 you not to answer to the extent that it reveals
4 contents of communications with counsel.

5 THE WITNESS: Okay.

6 MR. EWALT: To the extent that you can
7 answer without revealing communications, you should
8 answer.

9 THE WITNESS: Okay. So there's one sitting
10 on my desk at home.

11 MS. ABSTON: Okay.

12 THE WITNESS: I've probably seen it -- at
13 least the cover I've seen every day sitting there.

14 MS. ABSTON: Okay. Okay.

15 BY MS. ABSTON:

16 Q. So fairly recently you've reviewed your
17 expert report issued in the DOJ case?

18 A. It sits there on my desk at home. Okay.
19 Yep.

20 Q. Okay. Okay. And did you review your DOJ
21 case report while preparing for this deposition
22 today?

23 A. No.

24 Q. And did you review your DOG -- DOJ case
25 report, expert report, while drafting your expert

1 report in this matter?

2 A. Yes.

3 Q. Okay. And for what purpose did you review
4 your -- what we have marked as Exhibit 7, your DOJ
5 case expert report?

6 A. Much of the narrative is the same. The part
7 of what is in this report is an account of what the
8 programs are and what their -- what purposes they
9 serve and -- except where I had -- well, that's why.

10 Q. Do you recall if you made any changes in
11 between your DOJ report and the report you issued
12 here in this case?

13 MR. EWALT: Objection to form.

14 THE WITNESS: There was some change -- the
15 reports are not identical. Of course there are
16 changes, yeah.

17 BY MS. ABSTON:

18 Q. Do you recall any changes as you sit here
19 today?

20 A. Well, essentially all of the allegations
21 are -- are slightly different, and the words that are
22 used in -- in the complaints that I'm responding to
23 are different, and the responses are tailored to the
24 words of the complaint. So all of that material --
25 the largest changes are all of that material.

1 Q. And how much time did you spend preparing
2 your expert report in the DOJ case?

3 A. Oh, it's so long ago now.

4 Q. Well, if you -- maybe this will help. I'm
5 happy to ask a cleaner question.

6 A. Yeah.

7 Q. So if you began -- strike that.

8 If you were retained in January of 2023 and
9 you issued your report in January of 2024, how many
10 hours do you estimate that you spent within the span
11 of a little over a year working on your DOJ case
12 expert report?

13 A. Oh, I'm going to say, you know, 500, 400. I
14 don't know, something -- probably something in that
15 range.

16 Q. Okay.

17 A. I would -- that's an estimate.

18 Q. Okay. And did you spend 300 -- or 500 or
19 400 hours preparing for your Eastern District of
20 Texas expert report?

21 A. No.

22 Q. How many hours do you think you spent
23 drafting your Eastern District of Texas expert
24 report?

25 A. Maybe -- so this -- I'm going to -- if I had

1 to make a very rough estimate, is that okay? Because
2 all I can do is make a very rough estimate. Maybe in
3 the neighborhood of 200.

4 Q. Okay. So you spent more time preparing your
5 expert report in the DOJ matter than you did in the
6 Eastern District of Texas matter?

7 A. Much of the material was reused, as you --
8 as you can see when you compare the reports.

9 Q. Okay. And what is your standard hourly
10 rate?

11 A. It's \$1,800.

12 Q. And has that rate changed in between issuing
13 your DOJ expert report and the expert report here in
14 this case?

15 A. No.

16 Q. Since you've issued your Eastern District of
17 Texas expert report this year, has your rate changed?

18 A. No.

19 Q. Okay. Do you know how much Google was
20 charged for your time spent preparing your expert
21 report in the DOJ case?

22 A. At the rate I've just described. So however
23 many hours I had times that rate would give the
24 answer.

25 Q. Do you have an estimate of how much?

1 A. Well, if it was -- if it was 500 hours, then
2 it would be \$900,000, just doing the arithmetic.

3 Q. And does that include the number of hours
4 that you testified when you were on the stand?

5 A. Oh, no. I think -- does it include that?
6 That was -- that was in preparing the report, I think
7 you asked.

8 And then I, you know, was several days in --
9 in Virginia, and I don't recall exactly what the
10 billing was. But if I was eight hours a day for five
11 days, say it was 40 hours, just to make up a number,
12 roughly.

13 Q. So by the time you issued your DOJ expert
14 report in January 2024, you had put in about 500
15 hours, which would equate to approximately \$900,000;
16 is that correct?

17 A. That's an estimate, yeah.

18 Q. Okay. And then how many hours did your
19 Auctionomics team spend preparing your DOJ report?

20 MR. EWALT: Objection to form.

21 THE WITNESS: I've never seen that
22 information.

23 BY MS. ABSTON:

24 Q. Okay. Do you -- okay.

25 And was the fee agreement -- strike that.

1 Was your financial arrangement in the DOJ
2 case different than your financial arrangement here
3 in the Eastern District of Texas case?

4 A. No.

5 Q. Okay.

6 A. Well, I take that back. Let me -- it's of
7 the same form. Obviously they are two different
8 agreements, but the form was the same.

9 Q. Okay. Are there -- but there are
10 differences in between your DOJ case financial
11 arrangement versus your Eastern District of Texas
12 financial arrangement?

13 A. They are different documents. My -- my rate
14 is the same. The -- and I'm not -- I think the
15 charges that Google may have varied over time. I
16 don't -- you know, I don't really handle that side of
17 our business; my partner takes care of the business
18 side. So I don't really have that information.

19 Q. Okay. So you're not aware of how much money
20 Auctionomics has received for their team's work on
21 the DOJ report?

22 MR. EWALT: Objection to form.

23 THE WITNESS: I'm not aware. You know, I
24 only have the -- you know, I don't know how much they
25 have received for the DOJ report.

1 BY MS. ABSTON:

2 Q. Do you have an estimate?

3 A. Okay. We're talking about the DOJ report
4 again --

5 Q. Yes.

6 A. -- for the period up till -- I think I
7 estimated some number in the -- in my deposition. I
8 think it was -- you know, it's some single-digit
9 millions number. But more than 5 million, less than
10 10 million, somewhere in there.

11 Q. Okay. I will get to that a little bit
12 later.

13 Okay. So we've talked a lot about
14 Auctionomics today, and we've discussed how
15 Auctionomics has assisted you with the matters you've
16 been retained in from Google.

17 A. Yep.

18 Q. And this -- the Google cases have been
19 Auctionomics' big project since you've been retained
20 as an expert witness; is that correct?

21 A. Yes.

22 Q. Okay. And so when we're looking at your DOJ
23 case report, did you create your report in the
24 entirety? Yourself.

25 A. Yeah, I created it with assistance, as

1 usual.

2 Q. Okay. So no aspect of your DOJ case expert
3 report was given to you?

4 A. No, no. I got it -- I directed the -- I
5 either wrote or directed everything that's in there.

6 Q. Okay. And who assisted you from
7 Auctionomics on the DOJ case expert report?

8 A. It's mostly the same group that I described
9 to you. I think -- let's see. Eric Tang was there,
10 and I think was not involved in the Texas case, was
11 on the DOJ case. But other than that, I think the
12 group is the same group of people that I've already
13 listed.

14 Q. Okay. And in your report -- I believe it's
15 in paragraph 13, if we want to flip there -- you
16 discuss your DOJ rate of compensation; is that
17 correct?

18 A. Let's find out. Where's paragraph -- oh,
19 here it is. And it continues.

20 Yes.

21 Q. And in that section you say, "I receive
22 additional compensation based on the profits of
23 Auctionomics, Inc." --

24 A. Yes.

25 Q. -- "which has in this matter provided

1 research support and assisted in the preparation of
2 this report under my direction and supervision."

3 Do you see that?

4 A. Yep, I do.

5 Q. Okay. So as you sit here today, you're not
6 able to give me an estimate of how many hours the
7 Auctionomics team has spent assisting in the
8 preparation of your DOJ expert report?

9 A. No. And I actually have never seen those
10 numbers.

11 Q. So there's portions of your DOJ expert
12 report that you did not write yourself, but you
13 merely directed?

14 MR. EWALT: Objection to form.

15 THE WITNESS: I was assisted in -- this is
16 the same -- you know, there are portions of my DOJ
17 report in which the -- in which I was assisted in the
18 writing.

19 BY MS. ABSTON:

20 Q. Did you submit any erratas to your report
21 after it was submitted on January 23rd, 2024?

22 A. I don't believe so, no.

23 Q. Did you submit any other reports in the DOJ
24 case?

25 A. I don't believe so, no.

1 Q. Okay. Did you submit any other declarations
2 in the DOJ case?

3 A. No.

4 Q. Okay. Did you submit any other sorts of
5 amendments to your report in the DOJ case?

6 A. I don't believe so, no.

7 Q. Okay. Is it fair to say that we've got --
8 Exhibit 7, your DOJ expert report, includes all of
9 your opinions that you offered in the DOJ case?

10 A. Well, and whatever I said on the stand,
11 whatever I said in deposition, these are -- this is
12 what I prepared in my report.

13 Q. Okay. And is it fair to say that everything
14 in Exhibit 7 includes all the bases of your opinions
15 that you offered in the DOJ case?

16 A. Everything that's in here has the bases.

17 When I was testifying in Virginia, I was
18 also responding to what others have said. So there
19 may have been some details that differed.

20 Q. And is it fair to say that everything in
21 Exhibit 7 includes all the materials you relied upon
22 in order to form your opinions that you offered in
23 the DOJ case?

24 A. That I offered in this report. Again,
25 the -- what -- when I gave my testimony, I was also

1 relying on what I heard at trial.

2 Q. Did you ever supplement your materials
3 relied upon list prior to the DOJ trial?

4 A. Prior to the DOJ trial, I did not, no.

5 Q. Okay. Did you -- after issuing your report
6 on January 23rd, 2024, did you review any additional
7 materials that you relied upon in order to form your
8 opinions that you testified to at trial?

9 A. I'm sorry. That was too fast. Say it
10 again?

11 Q. That's okay.

12 A. Yep.

13 Q. After issuing your report on January 23rd,
14 2024, did you review any additional materials that
15 you then relied upon in order to form your opinions
16 that you testified to at trial?

17 MR. EWALT: Objection, form.

18 THE WITNESS: Documents that were -- yeah,
19 they related to documents that were used in court by
20 witnesses while I was watching -- while I was
21 watching the court. I included and referred to those
22 in my trial testimony.

23 BY MS. ABSTON:

24 Q. Okay. So in between the time that you
25 issued your DOJ report, so January 23rd, 2024, and

1 the time that you were deposed in the DOJ case, do
2 you recall specifically what type of work you were
3 doing in furtherance of your opinions here in this
4 case?

5 A. Here in this Texas case?

6 Q. Uh-huh.

7 A. What was I doing after I completed my
8 deposition?

9 Q. Your expert -- well, let me -- let me ask it
10 this way.

11 Are you able to recall what work you
12 performed on your Eastern District of Texas expert
13 report from the time you issued your DOJ case expert
14 report on January 23rd, 2024, until you were deposed
15 in the DOJ case on March 4th, 2024?

16 A. Well, the next thing that I recall us doing
17 was picking up, again, the Texas complaint. And
18 whenever we got the Texas reports -- the dates are
19 all confused in my head.

20 Q. Okay. That's okay.

21 A. But whenever I got the Texas reports,
22 reviewing them and arranging my report to respond to
23 the new materials that were coming in.

24 Q. Okay. So you don't recall doing any
25 specific Eastern District of Texas work prior to

1 receiving the plaintiffs' expert reports?

2 A. As I sit here, I do not recall anything
3 other than that.

4 Q. So you spent January 23rd, 2024, until
5 March 4th, 2024, preparing for your DOJ case
6 deposition?

7 MR. EWALT: Objection. Form.

8 THE WITNESS: I spent most of that time
9 doing my academic work, this period. I wouldn't say
10 that I spent that time preparing. The English is
11 ambiguous, and I think perhaps you mean that that
12 was -- it was during that time I was doing
13 preparation. And if that's what you mean, then
14 during that time, I was doing preparation. But I'm a
15 full-time professor at Stanford University, and
16 during that quarter I was teaching, and I would have
17 spent a great deal of time in the classroom and
18 working with my students.

19 BY MS. ABSTON:

20 Q. Okay. And looking back at Exhibit 6, which
21 is your March 4th, 2024, deposition transcript.

22 A. All right. You're going to highlight
23 something for me here?

24 Q. Yes. We will flip to it. We've established
25 that you've previously seen this.

1 Do you recall if you had any errata to this
2 deposition transcript?

3 A. There were some errata. I imagine -- this
4 is after the errata? Is that what this is, or this
5 is before errata? This document that I'm looking at
6 now.

7 Q. Did you submit any errata relating to your
8 deposition transcript in the DOJ case?

9 A. Yes, there were some errata.

10 Q. Were they substantive changes?

11 A. I don't recall any substantive changes, no.

12 Q. Let's look at page -- I believe it starts on
13 page 6.

14 A. Is this --

15 Q. Yes.

16 A. This is the original before any errata, or
17 this is after the errata? Or what is this that I'm
18 looking at here?

19 Q. Okay. We're going to double-check, but I
20 believe this is the original, pre-errata.

21 A. Okay.

22 Q. Okay. Let's turn -- but for this purposes,
23 I'm just going to ask you some quick questions about
24 the deposition exhibit.

25 A. Okay.

1 Q. And so to the extent that anything I ask
2 you, you believe that you may need to see the errata
3 or see the deposition transcript that was issued
4 after your errata, just let me know, and we will put
5 on the record that you can do that.

6 So looking at page 6, do you see how it has
7 a list of the exhibits to this deposition?

8 A. Page 6? Oh, this exhibit. Exhibit -- okay.
9 Emails from dah, dah, dah, dah, dah. Okay.

10 Q. Yeah.

11 A. I see a list, yes.

12 Q. Okay. What I want to do now is just run
13 through these exhibits with you.

14 Do you recall testifying to these exhibits?

15 A. There's an email string and Bates stamp.
16 That doesn't tell me a lot to help me remember, does
17 it?

18 Q. No, but were you -- do you believe that you
19 were asked questions about these exhibits within your
20 March 4th, 2024, deposition?

21 A. Quite possibly. Let's see the exhibits and
22 see if they are familiar.

23 Q. Okay. Okay. Let's first look at -- it's
24 M-9. We're going to mark this as Exhibit 8.

25 (Exhibit No. 8 was marked.)

1 BY MS. ABSTON:

2 Q. Do you recognize this document?

3 A. Let me take a look at the document, please.

4 Q. And if it helps, I'm not going to ask you
5 any specific questions about the document. I'm just
6 wanting to know if the document was Exhibit 1 to your
7 deposition in March 4th, 2024 --

8 A. Well, it's marked as "Exhibit 1." So I'm
9 going to assume that that's marked correctly.

10 Q. Okay. And --

11 A. It looks roughly, vaguely familiar.

12 Q. Okay. And you're referencing the deposition
13 exhibit sticker that's in the bottom right-hand
14 corner; is that correct?

15 A. Yes, that's correct.

16 Q. Okay.

17 MS. ABSTON: I am now going to hand you
18 M-10, which is Exhibit 2 to your March 4th, 2024,
19 deposition.

20 BY MS. ABSTON:

21 Q. Do you recognize this document?

22 THE REPORTER: Is that Exhibit 9?

23 MS. ABSTON: Yes. We're going to mark this
24 as Exhibit 9.

25 (Exhibit No. 9 was marked.)

1 THE WITNESS: Okay. Let's see what it is.

2 BY MS. ABSTON:

3 Q. Mr. Milgrom, I'm also just going to ask if
4 you recognize this document.

5 And do you --

6 A. Okay. Yeah.

7 Q. Okay. And you see the exhibit sticker at
8 the bottom right-hand corner?

9 A. I do see the exhibit sticker, and I see what
10 it's about. Yep. Okay.

11 Q. Okay.

12 A. Yep.

13 MS. ABSTON: I am going to hand you now
14 M-12, which we're going to mark as Exhibit 10.

15 (Exhibit No. 10 was marked.)

16 MS. ABSTON: Here we go. I am going to mark
17 this as Exhibit 10.

18 Q. This was the --

19 A. You already marked this. Okay.

20 Q. Yes. This is Exhibit 4 to your March 2024
21 DOJ deposition transcript.

22 Do you see that?

23 A. The [REDACTED] declaration.

24 Q. Yes.

25 A. I remember this one.

1 Q. Okay.

2 A. Right?

3 Q. Yes. And you recognize that this -- you
4 recognize this document?

5 A. Yep.

6 Q. Okay.

7 A. I think so.

8 MS. ABSTON: We are now going to mark
9 Exhibit 11. This is M -- where are we here -- M-13.
10 This is the Milgrom 5, so the fifth exhibit to your
11 DOJ deposition.

12 (Exhibit No. 11 was marked.)

13 BY MS. ABSTON:

14 Q. Do you recognize this document?

15 A. It's marked accordingly, and --

16 Q. And you see the sticker?

17 A. Yeah, I see the sticker. That's what I mean
18 by "it's marked accordingly."

19 Q. Okay. Great.

20 MS. ABSTON: And then we are going to look
21 at M-14, which we will mark as Exhibit 12.

22 (Exhibit No. 12 was marked.)

23 THE WITNESS: Are these M numbers -- am I
24 supposed to see these M numbers --

25 MS. ABSTON: No need. That's just an

1 internal. You are fine on that.

2 Q. I am going to hand you what we are marking
3 as Exhibit 12. This is Milgrom 6, so it's the sixth
4 deposition to your DOJ deposition.

5 Do you see that?

6 A. It's marked that way. Okay.

7 Q. Okay.

8 A. So we have got a bunch of exhibits. Okay.

9 Q. So we have got a bunch of exhibits. So we
10 can actually set those aside for a minute.

11 A. Okay. Yeah.

12 Q. And let's pull back out your transcript.

13 A. Okay.

14 Q. Or your -- let's see here.

15 A. This one?

16 Q. Your transcript and your DOJ expert report.
17 So it's going to be Exhibit 6 and Exhibit 7.

18 A. Got 'em.

19 Q. Okay. You got those in front of you?

20 A. Uh-huh.

21 Q. And so I believe you previously discussed
22 that your hourly billable rate is \$1,800; is that
23 correct?

24 A. That's my hourly billing rate, yes.

25 Q. And has this rate changed since you issued

1 your DOJ report on January 23rd, 2024?

2 A. No.

3 Q. And what was your rate prior to issuing this
4 report on January 23rd, 2024?

5 MR. EWALT: Objection. Form.

6 THE WITNESS: What history -- how far back
7 do you want me to go in history here?

8 My rate became \$1,800 after the Nobel Prize
9 announcement in 2020.

10 BY MS. ABSTON:

11 Q. In 2020, prior to that announcement, what
12 was your hourly rate?

13 A. \$1,200.

14 Q. Okay. And your rates haven't fluctuated
15 since then?

16 A. Never, no.

17 Q. Okay. So at the time you were deposed on
18 March 4th, 2024, in the DOJ matter, you had been
19 working on the DOJ case at that point for a little
20 over a year; is that right?

21 A. It sounds that way, yeah.

22 Q. Okay. Do you recall testifying at your DOJ
23 deposition that at that point you had been paid
24 approximately \$900,000 for your work?

25 A. Okay. If that's what I said, then that's

1 what I said.

2 Q. Okay. And do you recall testifying at your
3 March 4th, 2024, DOJ deposition that up until that
4 point, Auctionomics had billed Google \$8 million for
5 those approximately 14 months?

6 A. That, again, was a rough estimate --

7 Q. Okay.

8 A. -- but I would have estimated something in
9 that range.

10 Q. And that \$8 million number only included the
11 work of the Auctionomics team --

12 MR. EWALT: Objection to form.

13 BY MS. ABSTON:

14 Q. -- is that correct?

15 MR. EWALT: Objection to form.

16 THE WITNESS: Yeah, it did not -- it
17 included -- it did not include specifically my time,
18 which was billed separately.

19 BY MS. ABSTON:

20 Q. So the date of your deposition, which was
21 March 4th, 2024, it appears you and Auctionomics had
22 completed at least a year of work resulting in just
23 shy of \$9 million worth of payment; would that be
24 correct?

25 MR. EWALT: Objection. Form.

1 THE WITNESS: "Just shy" assumes a level of
2 precision that I wouldn't have built into that
3 statement. But those numbers add up to just shy of
4 \$9 million.

5 BY MS. ABSTON:

6 Q. And do you have an idea of how many hours
7 you worked on the DOJ case after March 4th, 2024,
8 when you were deposed?

9 A. Well, let's see. I didn't do much more
10 until I was preparing for testimony, and then I've
11 already told you, you know, a rough guess of how many
12 hours I spent when I was down in Virginia. You know,
13 I don't know. So probably the whole thing is going
14 to be in a range of 50 to 100 hours.

15 Q. So between March 5th, 2024, until you
16 testified at trial in September 2024, probably --

17 A. Yeah, sounds --

18 Q. -- how many hours?

19 A. I'm just guessing. It's a guess for me.

20 Q. Okay.

21 A. This is -- yeah, it would be a guess, but
22 I've made that guess; 50 to a hundred, we'll say.

23 Q. Okay. And that's 50 to 100 hours that you
24 personally spent during that time period?

25 A. Yeah, I would imagine, right.

1 Q. Are you aware of how many hours Auctionomics
2 would have billed between March 5th, 2024, and the
3 time you testified at trial in September 2024?

4 A. I have never seen any of the hourly charges
5 of any of the other members of the Auctionomics team.
6 I don't have any knowledge of that.

7 Q. But you've received checks from Google for
8 that time period?

9 MR. EWALT: Objection. Form.

10 THE WITNESS: Auctionomics has received
11 checks from Google during that time.

12 BY MS. ABSTON:

13 Q. Do you have any idea how much money
14 Auctionomics has received for their work that
15 occurred after your deposition in the DOJ matter?

16 A. No, I don't. I don't.

17 Q. Do you have an estimate of how much
18 Auctionomics has received from Google since
19 March 5th, 2024?

20 A. How much Auctionomics has received. In all
21 cases added up, is that what you're asking about now,
22 or are we still talking about the DOJ case? Or
23 what's your question mean?

24 Q. Do you have an estimate of how much
25 Auctionomics has received from Google since

1 March 5th, 2024?

2 A. Since March 2024, payments from Google. And
3 we're talking about timing of receipts or billing?
4 We're talking about receipts.

5 Q. I'm happy to say --

6 A. I don't know what --

7 Q. Do you have an estimate of how much
8 Auctionomics has billed since March 5th, 2024?

9 A. In total for all the cases that were -- that
10 involved them, and this includes -- you know, I don't
11 know. I'm -- I'm going to guess, and I could be
12 quite off on this, but maybe \$5 million or something.

13 Q. Okay. And as the chair of Auctionomics, are
14 you aware of how much Auctionomics has billed in the
15 DOJ case to date, in total?

16 A. I'm not.

17 Q. Okay.

18 A. As the chair or in any other way, in either
19 function.

20 Q. And you've testified today that you're a
21 professor at Stanford?

22 A. I am, yes.

23 Q. And what is your annual rate of compensation
24 at Stanford?

25

1 Q. Okay. And are you expecting to earn more
2 from your litigation matters in 2024 than you did in
3 2023?

4 MR. EWALT: Objection to form.

5 THE WITNESS: I'm expecting -- so this is
6 first person singular? Is that what you're asking?

7 BY MS. ABSTON:

8 Q. Are you -- are you personally expecting to
9 earn more from your litigation matter in 2024 than
10 you did in 2023?

11 A. No.

12 Q. And if Auctionomics received 8 million, how
13 much more would you expect to earn from that?

14 MR. EWALT: Objection. Form.

15 THE WITNESS: It depends on the -- it
16 depends on how much Auctionomics -- I realize this
17 probably sounds very strange, but this -- you know,
18 I'm a full-time professor. Silvia runs the business.
19 Basically, once a year I go over accounts with her.
20 So I don't have a close estimate at all of what the
21 earnings will be. You know, they -- so I don't
22 really have a good idea.

23 BY MS. ABSTON:

24 Q. Okay. Let's talk about when you started
25 reviewing the plaintiffs' expert reports here for

1 this case in the Eastern District of Texas, okay?

2 A. Okay.

3 Q. So the Eastern District of Texas plaintiffs'
4 expert reports were issued on June 7th, 2024.

5 Does that sound familiar?

6 A. I just don't remember dates. I'm sorry.

7 Q. But you did review the plaintiffs' expert
8 reports immediately when they were issued in the
9 Eastern District of Texas case?

10 A. Oh, sure. We only had a very limited time
11 to respond. We -- you know, that was crash time.

12 Q. Okay. So what work did you do from
13 June 7th, 2024, when the plaintiffs' expert reports
14 were issued, until the time you issued your report on
15 July 30th, 2024, in that case?

16 A. I reviewed the plaintiffs' reports, sketched
17 what the -- tried to isolate from them what the
18 claims were, sketched the responses to the claims,
19 specified analyses that needed to be done, asked the
20 team to assemble documents to support, you know, my
21 conclusions or inform my conclusions in case I was --
22 in case my guesses were wrong, which they weren't,
23 and then prepared the report itself. It was crunch
24 time.

25 Q. Do you recall who originally reached out to

1 you about serving as an expert witness in the Eastern
2 District of Texas matter?

3 A. Again, I'm pretty sure that the original
4 contact was through Silvia, not through me. And --
5 and -- yeah. So, no, it wasn't anybody who reached
6 out to me directly.

7 Q. Okay. So you're -- you're not aware if
8 there was an attorney who reached out to you about
9 serving as an expert witness in any sort of Google
10 litigation?

11 A. So -- I would be guessing. I think I
12 probably shouldn't guess.

13 Q. Okay. Do you recall who reached out to you
14 and retained you to be an expert witness in the
15 Google DOJ trial?

16 A. No. As I say, I mean, I think this is all
17 of one piece. That is the -- I was made aware that
18 there were multiple closely related trials; that it
19 was about -- that they were looking for an expert to
20 comment on auction methods and the auction
21 procedures, and there were various claims being made
22 about them, and in a series of cases.

23 Q. Okay. And were you given a budget for your
24 Auctionomics team in any way?

25 A. There were -- a contract was negotiated that

1 specified -- yeah, that specified limits on what
2 would be paid.

3 Q. And what were those limitations?

4 A. I don't recall.

5 Q. Okay. Do you recall when that contract was
6 signed?

7 A. I think there's one every year. I think
8 they renegotiate -- Silvia renegotiates this stuff
9 annually.

10 Q. Okay. Do you remember -- do you -- do you
11 recall anything else or any other aspects of the
12 contract, as you sit here today?

13 A. I'm going to -- I think there were sort of
14 three pieces of the money. There was the payment for
15 my hours, payment for the team, and it turns out in
16 this case that data is so huge that there's a
17 separate payment for data storage and processing.

18 Q. Okay.

19 A. That's the kind of detail that I remember.

20 Q. And are you being compensated in the Eastern
21 District of Texas case based on your performance?

22 A. No.

23 Q. Are you being compensated in the Eastern
24 District of Texas case based on any sort of
25 contingency basis?

1 A. No.

2 Q. And are you eligible for any bonuses based
3 on your work in the Eastern District of Texas case?

4 A. No.

5 Q. Are any of your Auctiononomics support team
6 members eligible for bonuses based on their work in
7 this case?

8 A. Auctiononomics pays bonuses based on the work
9 that the team does, whether it does good work. It's
10 not contingent on any outcomes in the case.

11 Q. Okay. And you have submitted invoices for
12 your work conducted, leading up to the issuance of
13 your July 30th, 2024, Eastern District of Texas
14 report; is that correct?

15 A. Yes.

16 Q. Okay. Do you know how many invoices that
17 you've submitted?

18 A. They are submitted monthly. We can count
19 the months and figure it out. But -- and the -- and,
20 again, I believe that the invoices to Google are
21 combined, that is, the timesheet -- the timesheets
22 specify, at least for my time, I see my own time
23 sheets -- specifies what I was doing in each period.
24 But it's only one -- one invoice. And it's monthly.

25 Q. And since issuing your July 30th, 2024,

1 Eastern District of Texas expert report, you're
2 unable, as you sit here today, to estimate how many
3 hours that you've spent continuing to work on Eastern
4 District of Texas-only-related review?

5 MR. EWALT: Objection to form.

6 THE WITNESS: Yes. I'm unable to -- I'm
7 unable to make a reasonable estimate.

8 BY MS. ABSTON:

9 Q. In what year did Auctiononomics make the most
10 revenue, to your recollection?

11 A. That would have been revenue from the --
12 associated with the C-band auction. And that would
13 have been, you know, just before or maybe the --
14 maybe overlapping the same year as the -- as we began
15 this case.

16 We had a -- yeah, so I'm going to guess
17 2021, 2022, somewhere in there.

18 Q. Okay. But that was not on a Google-related
19 matter?

20 A. No.

21 Q. Okay. Or that was related to a
22 Google-related project?

23 A. No, no, not -- not related. It was this
24 \$85 billion auction for radio spectrum for 5G uses.

25 Q. Okay. And so in 2021 or 2022, they may have

1 had a couple what you deem big projects that they --
2 that Auctionomics was working on during that time?

3 A. Just as we ended the C -- we began Google --
4 so, you know, they could have -- one could have ended
5 and the other begun in the same year, potentially.
6 I -- I -- I have no shortage of demand for my time,
7 and the one project ended and another began. It
8 would be not unlikely that they were in the same
9 calendar year.

10 Q. Okay. Okay. So we can set those exhibits
11 aside. What I want to do is pull back out Exhibit 3,
12 which is your Appendix B to your Eastern District of
13 Texas report.

14 A. It's here somewhere?

15 Q. It is here somewhere.

16 A. 5, 7.

17 Q. I'm going to ask you some questions about
18 the materials you relied upon to form your opinion.

19 A. Are we talking about the exhibits now? Is
20 that what we're talking about?

21 Q. Yeah, it should be towards the beginning.

22 A. Oh, there's 3.

23 Q. There we go.

24 A. Okay. Here. Oh, that exhibit.

25 Q. Got that list in front of you?

1 A. Yes.

2 Q. Okay. So at the top of this, it says,
3 "Appendix B." It's your list of materials relied
4 upon.

5 A. It does.

6 Q. Okay. So do you have any changes that you
7 want to make to this Appendix B, as you sit here
8 today?

9 A. List of materials -- this is the list of
10 materials relied upon for my Texas report, right? Is
11 that what we're looking at here?

12 Q. Yes. This is Appendix B to your July 30th,
13 2024, Eastern District of Texas report.

14 A. So this is what I relied on for that report;
15 is that -- and so I have no reason to change it.

16 Q. Okay. So you've not reviewed any additional
17 materials that you would like to add to this list
18 since issuing your report on July 30th?

19 A. The report -- this is a list of materials
20 relied on for that report. Anything that I read
21 after that report, such as materials that came up
22 during the -- during the DOJ trial, won't be here and
23 weren't relied on for that report.

24 Q. Okay. Did you -- well, and so let's --
25 let's look at this. Under section -- there's some

1 subsections here. And looking at page 473 at the
2 bottom, we're looking at subsection A, it says,
3 "Complaint and expert reports."

4 Do you see that?

5 A. Yes.

6 Q. Well, and before we get there, did you
7 create this reliance list?

8 A. With the assistance of -- of my team. They
9 actually assembled it for me.

10 Q. Okay. And so --

11 A. Pulled everything out of all the footnotes
12 and all of the materials that I had used and -- and
13 created this.

14 Q. Okay. And did you review it before it was
15 submitted with your report?

16 A. I reviewed it -- I reviewed my entire
17 report.

18 Q. Okay. And if you have any updates to this
19 reliance list prior to trial, we would ask that
20 counsel please provide us with an updated copy of
21 this list. Can we agree to that?

22 A. I'm a little confused by this line of
23 questioning. This is about what I relied on for a
24 report that I submitted last summer. I don't
25 understand the questions about how what I read after

1 that could have been relied on for the report I
2 submitted last summer. I'm a little mixed up by the
3 question.

4 Q. Okay. We will keep moving on.

5 So -- but you -- right. Because you
6 reviewed materials that you considered, but you
7 didn't rely upon in forming your opinions in this
8 report?

9 MR. EWALT: Objection. Form.

10 THE WITNESS: That's not the because. I
11 mean, the because I -- other things that I -- more
12 materials were shown -- were shown at the -- produced
13 by the DOJ's experts and produced in trial that I
14 have seen since the preparation of this report.

15 BY MS. ABSTON:

16 Q. Okay. Well, did you review any of the
17 plaintiffs' expert rebuttal reports that were issued
18 in this case?

19 A. Yes.

20 Q. Okay. Did you review all 11 plaintiffs'
21 expert rebuttal reports that were issued in this case
22 in September?

23 A. Yeah, well, with a generous definition of
24 reviewed, yes.

25 Q. Okay. But this one only contains the

1 plaintiffs' expert reports that you reviewed in
2 preparation for issuing your July 30th, 2024 report;
3 correct?

4 A. Yes. This was issued --

5 Q. Okay.

6 A. -- July 30th, 2024, and can't reflect
7 anything that I did after that time.

8 Q. Okay. And, again, this list does not
9 include any materials that you may have considered,
10 but you did not rely upon in order to form your
11 opinions in this case?

12 A. That's true.

13 Q. Okay. Have you ever reviewed Google's
14 source code relating to auctions involving digital
15 advertising?

16 A. I haven't reviewed it, no.

17 Q. Have you ever reviewed Google's source code
18 relating to auctions involved in AdX?

19 A. I haven't reviewed any Google source code.

20 Q. Outside of this litigation, have you --
21 strike that.

22 In other Google litigation matters, have you
23 ever reviewed any source code?

24 A. I have not, in other litigation, any source
25 code from any -- anyone in litigation.

1 Q. Are you aware of anyone from the
2 Auctionomics team has reviewed any source code in
3 preparation -- in preparing your report?

4 A. I understand that -- that Google has other
5 experts that review source code.

6 Q. Did you cite to any source code in your
7 July 30th, 2024, report?

8 A. I don't recall. I don't think so, but I
9 don't recall.

10 Q. So did you personally look at any open
11 display web advertising source code in forming your
12 opinions in this case?

13 A. No.

14 Q. But you may have had someone assist you in
15 reviewing the open display web advertising source
16 code?

17 A. Or read reports about it, as described by
18 Google's parties or read emails that described it.
19 But, no, I did not reserve -- I did not personally,
20 as I just said, review the source code.

21 Q. And do you recall which of Google's experts
22 that you believe you may have read their reports,
23 where it may have included some sort of source code?

24 A. Yeah, there's -- yes.

25 Q. Okay. Do you recall when you read those

1 reports?

2 A. You know, I recall having a telephone
3 conversation and -- and where I questioned one of the
4 people who read source code.

5 Q. Okay. And -- and tell me a little bit more
6 about that telephone conversation. Who was that
7 with?

8 A. I think Professor Rinard, I believe, is his
9 name.

10 Q. Okay. And how long did that conversation
11 last?

12 A. 15 minutes.

13 Q. Okay. And was there anyone else on the
14 conversation with you?

15 A. Anyone else on the conversation, yeah --
16 well, no, I -- there were other people in the room
17 while the conversation that was going on. Is that
18 what you mean?

19 Q. Okay. Yeah, I'm happy to -- that should
20 have been my first question.

21 So did the conversation take place in
22 person?

23 A. On the telephone.

24 Q. Okay. Who else was in the room with you
25 when you had a conversation with Professor Rinard?

1 A. Well, Andy -- Andy Skrzypacz over here --
2 over there was in the room with me. With Mitch Watt,
3 who is here, was in the room with me. Some attorneys
4 were in the room with me.

5 Q. Okay. Do you recall which attorneys were in
6 the room with you?

7 A. I'm pretty sure Mr. Ewalt was in the room
8 with me. But they weren't participants in the
9 conversation. The conversation was a conversation
10 between me and Professor Rinard that the -- that
11 folks were listening to.

12 Q. Okay. And did you request a conversation
13 with Professor Rinard?

14 A. Did I -- did I request the conversation? I
15 had asked for information about -- about certain
16 programs, and that conversation was set up for me.

17 Q. Okay. And --

18 A. I didn't --

19 Q. -- were you shown any source code during
20 that 15-minute conversation?

21 A. I was not shown the source code.

22 Q. Okay. Was any source code discussed during
23 that 15-minute conversation?

24 A. Yes.

25 Q. Okay. Did you take any notes during that

1 conversation?

2 A. I didn't take written notes, no.

3 Q. Okay. Did any of your team members take
4 written notes during that conversation?

5 A. I don't know.

6 Q. Okay. Who would know if there were any
7 notes taken during that conversation?

8 A. I guess anybody who took notes would know
9 that they took notes. I didn't ask anyone about
10 notes.

11 Q. Would the handful of Auctionomics team
12 members that you've listed today possibly have taken
13 notes during your conversation with Professor Rinard?

14 A. It's possible.

15 Q. Okay. And did you incorporate any of your
16 conversation with Professor Rinard into your
17 July 30th expert report?

18 A. No.

19 Q. When did the conversation take place with
20 Professor Rinard -- or Rinard?

21 A. However you pronounce his name. I'm not
22 hundred percent sure. It was recent, a few days
23 back.

24 Q. Oh, okay. So it happened after the issuance
25 of your report?

1 A. Yeah, that's what we've been saying.
2 Everything that I relied on in the report is listed.

3 Q. Okay. So you chose recently to have a
4 conversation with Professor Rinard to discuss -- I
5 think you said some program; is that correct?

6 A. To discuss source code related to -- yeah,
7 related to --

8 Q. But not solely discuss source code. You
9 discussed other matters as well; is that correct?

10 A. No, it was all about -- it was all about
11 source code. I needed to understand the timing of
12 certain programs.

13 Q. Okay. And are you aware that you produced
14 additional backup materials with your report on
15 July 30th, 2024?

16 A. "Additional backup materials," what does
17 that mean?

18 Q. Are you aware when your report was served,
19 there were additional materials that counsel was
20 required to produce with your report?

21 A. I don't recall that.

22 Q. Okay. I will represent to you that when
23 your report was produced, additional backup materials
24 were produced along with it.

25 Did you have any sort of involvement in the

1 creation of those backup materials?

2 MR. EWALT: Objection to form.

3 THE WITNESS: I don't recall anything about
4 the backup materials, so I don't suppose I had
5 anything to do with them.

6 BY MS. ABSTON:

7 Q. Okay. I was going to bring a screenshot
8 today, but it was numerous, probably over like 11,000
9 pages alone just for the file names of all the
10 different materials that were produced with your
11 report. So I'm not going to get too granular into
12 it, but I just wanted to clarify if you had any sort
13 of estimate of the number of files that were produced
14 in those backup materials.

15 A. I was not aware of this process as long as
16 I -- as well as I can recall.

17 Q. And who would have compiled, let's say, the
18 backup data that you relied upon in forming your
19 opinions in this report?

20 A. Is this about the data? Are we talking
21 about data or --

22 Q. Well, we can talk about data and background
23 material. First I want to ask about data.

24 So who would have compiled the backup data
25 that you relied upon in forming your opinions in this

1 report?

2 A. Okay. So the backup -- backup data.
3 What's -- what's included in "backup data"? What
4 does that mean to you?

5 Q. I'm happy to rephrase it.

6 Who would have compiled any data that you
7 relied upon in forming your opinions in this report?

8 A. Yeah, so I had two teams of people working
9 on the data files in this work. Absolutely enormous.
10 These were petabyte data files, and I had two teams
11 of experts that were, you know, creating code, which
12 I understand -- I understand the code was turned
13 over -- maybe that's part of the supplemental
14 materials we're talking about -- and -- and data that
15 was used.

16 So it would have been those numbers that my
17 team, the team in Canada that I mentioned, led by
18 Professor -- the team -- I'm sorry about that. The
19 team in Canada that I mentioned that was led by
20 Professor Kevin Leyton-Brown, and the team in
21 California, with Paulo Soumani and Hunter Guru and
22 others.

23 Q. Okay. So your Auctionomics team assisted in
24 compiling the data that was -- that you relied upon
25 in the report?

1 A. The data I relied upon in the report and the
2 data analyses and the tables and so forth.

3 Q. Are you aware if you produced any Parquet
4 files in this case?

5 A. I don't know what a "Parquet file" is.
6 Sorry.

7 Q. Do you know if you produced any open-display
8 web advertising source-code-protected data files in
9 this case?

10 A. I have already told you, I'm totally
11 unfamiliar with this -- this. So I don't know.

12 Q. I just wanted to double-check. Okay.
13 Moving on.

14 Let's talk about the types of materials that
15 you were given access to when you were forming your
16 opinions. Okay?

17 A. Okay.

18 Q. So do you recall when you first received
19 access to any sort of materials in the Eastern
20 District of Texas case?

21 A. I do not recall dates, no.

22 Q. Okay. Was it earlier than this year?

23 A. I'm sure it was.

24 Q. Okay.

25 A. Yeah.

1 Q. Do you think it was before 2023?

2 A. You know, I've already told you, I don't
3 know when this was made available. Yeah.

4 Q. Okay. But it's reasonable to assume that
5 you had access to Google adtech materials since
6 you've been retained in the DOJ case; is that
7 correct?

8 A. Yes.

9 Q. Okay. When -- what type of materials --
10 well, strike that.

11 Did you ever request specific types of
12 materials in order to form your opinions in this
13 case?

14 A. Did I request specific types of materials.

15 Well, there were some questions we had about
16 how programs operated, and some of the expert
17 declarations were answering questions that we had
18 asked to be -- that were not answered in the
19 documents that we had. And so their expert
20 declarations included things that we requested,
21 answers to questions we had.

22 Q. Okay. And when you say "expert
23 declarations," what case are you referring to?

24 A. I'm -- I'm a little confused about what's
25 turned up where here. I'm sorry.

1 Q. That's okay.

2 A. But [REDACTED] declaration, for
3 example, was in the -- yeah, just for example. Yeah.

4 Q. Okay. Okay. So Google also provided you
5 with access to certain either employee or other
6 witness declarations?

7 A. Yes.

8 Q. Okay. And you're referring to the earlier
9 one that we talked about a little bit earlier today
10 that was in the exhibit to your DOJ deposition
11 transcript; is that correct?

12 A. It could be.

13 Q. You don't have to look at it now. But I
14 think that's the one you referenced to.

15 A. It's possible. Right.

16 Q. Okay. So do you believe that you had access
17 to all produced materials within this case?

18 A. I believe that we had access -- yes, that
19 I -- we had access to all the produced material.

20 Q. And when you say "we," you're referring to
21 your Auctionomics team members having access to all
22 materials produced in this case; is that right?

23 A. Yes. The people under my direction, yes.

24 Q. Okay. And did you ever yourself look at any
25 of the document productions that were produced by

1 Google?

2 A. I looked at individual documents. There
3 were millions, as you know, of documents produced,
4 and they were all for me presorted into -- into a
5 more useful form.

6 Q. Okay. And the sorting that you're
7 referencing, was that done by you giving specific
8 instructions to Auctionomics team members about what
9 kind of documents you were looking for?

10 A. Sometimes. But sometimes, you know --
11 sometimes.

12 Q. Okay.

13 A. Yeah.

14 Q. What about the times -- you know what I'm
15 going to ask next. What about the other times? Were
16 there other ways -- let me strike that.

17 Outside of you giving specific instructions
18 to Auctionomics team members about what kind of
19 documents you were looking for, did Auctionomics team
20 members independently run searches and send you
21 documents of things that they thought you might need
22 to see?

23 MR. EWALT: So I'm going to object and
24 instruct you not to answer to the extent that it
25 reveals communications with your staff. That's

1 outside the scope of expert discovery under the
2 expert stipulation.

3 THE WITNESS: I guess it's all about
4 communications with my staff, so I suppose I can't
5 answer that.

6 BY MS. ABSTON:

7 Q. Okay. But, to your knowledge, you believe
8 you had access -- strike that.

9 To your knowledge, you believe that you and
10 your Auctionomics team members that assisted you in
11 this report had access to all produced materials
12 within this case?

13 A. Yes.

14 Q. Okay. Did you conduct any independent
15 outside research for your work on this case?

16 A. What does "outside research" mean?

17 Q. Outside of the produced materials that you
18 were given access to.

19 A. Possibly. I may have done that. I remember
20 wondering -- yeah, I think probably so.

21 Q. What do you remember wondering or
22 researching outside of the materials produced within
23 this case?

24 A. You know -- well, I remember wondering
25 were -- what might be in industry publications. I

1 wasn't sure whether all of that was in the produced
2 documents. And I wondered whether industry
3 publications had commented on certain things that
4 were supposedly hidden. It might be -- it might be
5 widely known in the industry.

6 I remember both -- well, you know, there
7 were various searches that I described that might
8 have been conducted in or outside the -- the
9 documents, depending on whether there was anything in
10 the -- the document cache that we had.

11 MR. EWALT: So we have been going for about
12 an hour now, a little over. So if we get to a good
13 stopping point soon, that would be a good for a
14 break.

15 MS. ABSTON: I think I'm at a stopping point
16 right now. That's great.

17 Do you want to take a ten-minute break?

18 THE WITNESS: Okay.

19 THE VIDEOGRAPHER: The time is 2:49 p.m.
20 Pacific Time. We are going off the record.

21 (Recess taken.)

22 THE VIDEOGRAPHER: The time is 5:10 p.m. --
23 5:10, sorry about that -- 3:10 p.m. Pacific Time. We
24 are back on the record.

25 ///

1 BY MS. ABSTON:

2 Q. Okay. Dr. Milgrom, did you talk to your
3 counsel during the break?

4 A. Yes.

5 Q. Okay. Did you talk about the contents of
6 your testimony?

7 MR. EWALT: Objection. I'm going to
8 instruct you not to answer and reveal any contents of
9 the communications with counsel.

10 BY MS. ABSTON:

11 Q. Okay. Are you going to follow the
12 instruction of your attorney?

13 A. I will.

14 Q. Okay. So when we left off, we were talking
15 about the Appendix B to your July 30th, 2024, Eastern
16 District of Texas case expert report.

17 Do you recall that?

18 A. Yes, Appendix B being the list of --

19 Q. Yes.

20 A. Where was that?

21 Q. Appendix B contains the list of materials
22 relied upon.

23 A. Yeah, this one. Okay. Yeah.

24 Q. Okay. I want to ask you a few more
25 questions about that.

1 A. Okay.

2 Q. So did you conduct any searches of the
3 materials that were produced in this case?

4 A. Yes.

5 Q. Okay. And what kind of searches did you
6 conduct?

7 A. "What kind of searches." Google searches.

8 Q. Okay. And so you conducted searches of
9 Google, the website; is that what you're referring
10 to?

11 A. No, that -- that -- we searched on the
12 document searching for words and searching for
13 whatever, yeah.

14 Q. Okay. So you searched through whatever
15 platform contained all the materials that were
16 produced in this case; is that correct?

17 A. Yes. My team conducted the searches for me,
18 yes.

19 Q. Okay. And do you know how many searches
20 that your team did across that platform?

21 A. No.

22 Q. Okay. Did you yourself conduct any searches
23 of testimony produced in this case?

24 A. No.

25 Q. Okay. Did your team conduct any searches of

1 testimony produced in this case?

2 A. I don't recall my team doing that, no.

3 Q. Okay. So did you personally conduct any
4 document searches in looking through the materials
5 produced in this case?

6 A. No.

7 Q. Okay. Okay. Moving on to look what's --
8 let's look over here at Exhibit 3, going back to your
9 Appendix B that you have in front of you.

10 A. Yep.

11 Q. Okay. And so we've talked about some of the
12 subheaders that are contained on this list, and those
13 subheaders include things like complaint and expert
14 report, deposition transcripts, produced Google
15 documents, produced third-party documents, and then
16 publicly available sources; is that correct?

17 A. Just a minute.

18 That is correct. That's the major letter
19 heading, yes, that you have read.

20 Q. Okay. And I think we've established that
21 this list contains everything that you relied upon in
22 order to form your opinions in your July 30th report?

23 A. Yes.

24 Q. Okay. Okay. I want to -- let's flip over
25 to the publicly available sources, which I think is

1 going to be on page 479, in the bottom right-hand
2 corner.

3 A. Uh-huh.

4 Q. Let me know when you're there.

5 A. I'm there.

6 Q. Okay. So within your report, did you
7 approve all of the citations?

8 A. Did I approve all of the citations? Well,
9 I -- there's no separate approval process. That was
10 part of my review of the materials that -- that I
11 asked my team to create.

12 Q. Okay. Did you choose which citations,
13 footnotes went with each sentence in your report?

14 A. No, I asked -- for each sentence in my
15 report, I asked my team to extract the relevant
16 material and to put in sufficient detail for me to
17 check it.

18 Q. Okay. And you checked it or reviewed your
19 report in its entirety and then signed the report;
20 correct?

21 A. That is right.

22 Q. Okay. And did you base your opinions in
23 this report on peer-reviewed literature and sources?

24 A. In part.

25 Q. What else did you base your opinions on in

1 this report, outside of peer-reviewed literature and
2 sources?

3 A. Everything that's listed in this material
4 relied upon.

5 Q. Okay. And would you consider blogs to be a
6 preferred source to rely upon in forming your
7 opinions?

8 MR. EWALT: Objection to form.

9 THE WITNESS: Not in general.

10 BY MS. ABSTON:

11 Q. Okay.

12 A. But they might be sometimes. It depends on
13 what -- what I'm trying to infer. If I want to know
14 whether anybody knew that the sun rose and there was
15 a blog that said, Oh, look at the beautiful sunshine,
16 I would consider that evidence. It really depends on
17 the context.

18 Q. Okay. But there are times where certain
19 information rises to the level of meeting
20 peer-reviewed literature as a citation; is that
21 correct?

22 MR. EWALT: Objection. Form.

23 THE WITNESS: Peer-reviewed literature has
24 an advantage over -- over non-peer-reviewed
25 literature in that it has been peer reviewed, and

1 that adds an extra checking step. You know, what's
2 necessary depends on context. I'm not going to make
3 a general statement about that.

4 BY MS. ABSTON:

5 Q. Okay. And do you actively read any blogs on
6 adtech?

7 A. I do not.

8 Q. Do you actively read any blogs in general?

9 A. I don't.

10 Q. Okay. And in forming your opinions in this
11 case, did you read any blogs that you believe shaped
12 your opinions in this case?

13 A. As I said here, I don't recall what role
14 blogs played. That's not part of how I categorize
15 the arguments that I made in this report.

16 Q. Okay. Have you ever read "Clear-Code" blog
17 before?

18 A. I'm not sure.

19 Q. Okay. Did you look at specifically the
20 underlying material to which every citation was
21 pointing to?

22 A. Did I look at the -- every citation of --
23 okay. So a little context, to every citation in the
24 world --

25 Q. Yes. In your report, did you specifically

1 look at the underlying material to which every
2 citation was referring to?

3 A. I specifically looked at each one, yes.

4 Q. Okay. And if there are documents on your
5 materials relied upon list, would it be true that you
6 would have put your eyes on each and every one of
7 these documents?

8 A. Yes. It would be, yes.

9 MS. ABSTON: Okay. Okay. Now I want to
10 mark -- we're going to pull out M-1, and we are going
11 to mark this as Exhibit 13. So just give me one
12 second.

13 (Exhibit No. 13 was marked.)

14 MS. ABSTON: I think I have already given it
15 to Sandy, but I am handing you what is going to be
16 marked as Exhibit 13. It is your July 30th, 2024,
17 expert report that was issued in this case.

18 BY MS. ABSTON:

19 Q. Do you recognize that document?

20 A. It appears so, yes.

21 Q. Okay. And then if you flip to the back
22 pages, I think you'll locate your signature. Can you
23 locate that?

24 A. Wow.

25 Q. I think it's the very -- the very last page.

1 A. The very last page?

2 Q. It should be near the last page.

3 MR. EWALT: Just for the record, it looks
4 like Exhibit 13 does not include the appendices to
5 the report.

6 MS. ABSTON: Yes. So the appendices have
7 been separated out from the expert report, and those
8 have been marked today as -- Appendix A is marked as
9 Exhibit 1, and Appendix B has been marked as
10 Exhibit 3, and both of those are parts of his
11 July 30th, 2024, report.

12 So if you want to also pull out, in addition
13 to this exhibit, Exhibit 1 and Exhibit 3, which were
14 attached to your July 30th, 2024, report.

15 THE WITNESS: Yep. There is Exhibit 3.

16 BY MS. ABSTON:

17 Q. And just so the record is clear, when you
18 produced your report on July 30th, 2024, your report
19 contained Appendix A, your CV, and Appendix B, your
20 list of materials relied upon.

21 A. There it is. I've got them.

22 Q. Okay.

23 A. And all this stuff. All right. What do I
24 need to have?

25 Q. Okay. Just the report in front of you.

1 We're going to run through some of it.

2 A. All right.

3 Q. I believe we have talked about today that
4 Auctionomics assisted you in drafting both your
5 Eastern District of Texas report that we have just
6 marked as Exhibit 13, as well as your DOJ report; is
7 that correct?

8 A. Yes. I had assistance from Auctionomics
9 team members. That's right.

10 Q. Okay. As you sit here today, do you have
11 any corrections to your Eastern District of Texas
12 report?

13 A. Yeah, there was one correction that I would
14 make.

15 Q. Okay. Let's -- let's walk through that.
16 And what page is that on?

17 A. Good question. Is it on 208? Is it the
18 number? Can I find it in the table of contents? Let
19 me look. I always look at these things
20 electronically, which makes it harder to find.

21 MR. EWALT: Theorem 8 is on page 440, if
22 that's what you're looking for. I'm not sure if
23 that's the one you're looking for.

24 THE WITNESS: Let's take a look. 440, you
25 say?

1 MR. EWALT: Yes.

2 THE WITNESS: Let's see if that's the one.
3 Nope, that's not -- oh, that's Theorem 7. Here is
4 Theorem 8.

5 No, it's got to be in the EDA chapter.

6 MS. ABSTON: Are you searching for the EDA
7 section?

8 THE WITNESS: I found the EDA section.

9 MS. ABSTON: Okay.

10 THE WITNESS: Yes. So I'm on page 237.

11 MS. ABSTON: Let me flip there. We have got
12 Exhibit 13, your report, looking at page 237. What
13 paragraph number would you like --

14 THE WITNESS: I'm going to try not to mess
15 everything up here. Let me just put these things
16 down.

17 MS. ABSTON: Okay.

18 THE WITNESS: It is paragraph 328.

19 MS. ABSTON: Okay. So paragraph 328.

20 BY MS. ABSTON:

21 Q. Okay. And what would you like to correct in
22 paragraph 328?

23 A. Let's see. "If the publishers set the app
24 on the floor price for the AdX auction, ignoring the
25 red contracts and the distribution of values is

1 regular, then the floor price set by EDA maximizes
2 publisher revenue."

3 I had omitted a condition in this that the
4 distribution of values is assumed to be regular.

5 Q. Okay. So I'm going to read -- let me start
6 on the third line of paragraph 328. And I'm going to
7 read these sections, and I want you to tell me --
8 because we have got a few different numbers in this
9 paragraph --

10 A. All right.

11 Q. -- which aspects you want to change, just so
12 the record is clear.

13 So the second sentence of paragraph 328 on
14 line 3 begins "Then," and there's a No. 1, "EDA
15 increases the publisher's expected revenue relative
16 to the pre-EDA allocation procedure."

17 Do you see that?

18 A. Yes.

19 Q. Do you have any corrections that you would
20 like to make to that aspect of paragraph 328?

21 A. No.

22 Q. And then it reads, "And" -- and there's a
23 No. 2 -- "if publishers set the optimal floor
24 price"...

25 Do you have any changes for that section of

1 the sentence?

2 A. No.

3 Q. And the sentence continues..."for the AdX
4 auction ignoring direct contracts..."

5 And do you have any changes to that
6 phrasing?

7 A. No.

8 Q. Okay. Then there's a comma that says, "The
9 floor set by the EDA maximizes publisher revenue."

10 Do you have any changes to that?

11 A. The correction is an insertion between the
12 last -- right immediately after the last comma.

13 Q. Okay.

14 A. Or immediately before the last comma, I
15 suppose, for punctuation correction.

16 Q. So it's going to follow the word
17 "contracts"?

18 A. "Contracts."

19 Q. And what would you like to insert there?

20 A. "And the distribution of bitter values is
21 regular."

22 I probably have a footnote citing
23 regularity, attributing it to Roger Myerson's
24 definition of "regularity."

25 Q. And when did you discover this --

1 A. Omission.

2 Q. -- correction? Or, yes, if we want to call
3 it an omission. When did you discover this omission?

4 A. There's a correct criticism of this
5 conclusion by Professor Weinberg, who notes that I --
6 that my conditions are insufficient for the
7 conclusion, and his -- his criticism on that point is
8 correct.

9 Q. Okay. And I believe you're referring to
10 Professor Matt Weinberg's September 9th rebuttal
11 report; is that correct?

12 A. To his rebuttal report. I don't have the
13 date in my head, but yeah.

14 Q. Have you read any deposition testimony that
15 has taken place in this case from any experts?

16 A. I don't think I have, actually.

17 Q. Okay. Have you read any plaintiff expert
18 depositions that have taken place thus far in this
19 case?

20 A. No. Actually, I have not.

21 Q. Okay. So your -- the criticism you're
22 referring to from Professor Weinberg stems from his
23 rebuttal report?

24 A. Yes.

25 Q. Okay. And do you recall when you reviewed

1 Professor Weinberg's rebuttal report?

2 A. I don't recall exactly.

3 Q. Okay.

4 A. After -- after it came and before now.

5 Q. Okay. And so -- and apologies if I already
6 asked this. When did you discover this omission?

7 A. I read it in Professor Weinberg and said,
8 Did I actually do that? And I thought I had made
9 regularity a standing assumption here. And I had not
10 made regularity a standing assumption in the previous
11 text, so I put it in where it was required here.

12 So I would -- I would like to put it in
13 where it's required here.

14 Q. And do you plan to issue a formal errata
15 making this change?

16 A. I wasn't aware that I could issue a formal
17 errata. If I could, I would be happy to do so.

18 Q. Okay. And have you been asked to issue any
19 supplemental reports in this case?

20 A. No.

21 Q. Okay. And as you sit here today, do you
22 have any other corrections to your report that you'd
23 like to add, other than those that we have walked
24 through today, I think a few on your -- we're going
25 to get an updated CV, and then this one on page 237?

1 A. No other corrections.

2 Q. Okay. And this report contains all of your
3 opinions that you hold within this case?

4 A. As of the time when the report was written,
5 yes.

6 Q. Do you have any new opinions that you plan
7 to offer in trial in this case?

8 A. Well, I don't know what will be offered in
9 trial. That's up to the attorneys. But I have read
10 the rebuttal reports. I think there are remarks I
11 would like to say about them.

12 Q. What remarks would you like to say in light
13 of reviewing those plaintiffs' expert rebuttal
14 reports?

15 A. They are wrong, basically, in summary.

16 Q. So do you plan to offer new opinions at
17 trial relating to what the plaintiffs' expert
18 rebuttal reports have stated?

19 A. If this is -- because I've described what I
20 will do. I don't have plans for what my testimony
21 will be at trial; that I will get questions from the
22 attorneys.

23 I'm prepared -- I'm prepared to comment on
24 the new material that's presented for the first time
25 in the expert rebuttal reports and Professor

1 Weinberg's report. Most of -- most of the whole
2 combination is new. He has lots of new stuff in his
3 rebuttal report. And if the defendant's attorneys
4 wish to have me comment on them, I'm prepared -- I'm
5 prepared to do that.

6 Q. Okay. And then we've talked previously that
7 you had an interview with Professor Rinard, another
8 defense expert in this case?

9 A. Yes. That's right.

10 Q. And that interview took place prior to you
11 sitting for this deposition today; is that right?

12 A. It did, yes.

13 Q. But after the issuance of your July 30th
14 report?

15 A. Yes.

16 Q. Okay. Did you have any sort of interviews
17 with defense experts prior to issuing your July 30th
18 report?

19 A. Everything that I relied on in the July 30th
20 report is in -- in this -- in this list here. So
21 there's no interviews or -- just this.

22 Q. Okay. But my question was: Did you have
23 any interviews with defense experts prior to issuing
24 your report?

25 A. No.

1 Q. Okay. You didn't have any conversations
2 with any other defense experts?

3 A. No. I --

4 Q. Did you review any defense expert reports
5 prior to issuing your report on July 30th?

6 A. Any defense expert reports, no.

7 Q. And you didn't see any drafts of any sort of
8 expert reports before you issued your report?

9 A. I did not. This is just my report.

10 Q. Okay. So let's flip over to -- we were just
11 there. I think it was on page 392 of your report, if
12 you don't mind. We're looking at Exhibit 13.

13 And, actually, before we go there, I missed
14 a question. I need to go back really quick.

15 Does this report -- strike that.

16 Does this July 30th, 2024, report contain
17 all the bases for your opinions in this case?

18 A. I believe so, yes.

19 Q. Okay. Now, looking at page 392, if you will
20 let me know when you're there.

21 A. I'm here.

22 Q. And this section is section 15 entitled
23 "Technical Notes."

24 Do you see that?

25 A. I do.

1 Q. Okay. And there's, I believe, a handful of
2 subsections within these pages that contain your
3 technical notes that you use in forming your opinions
4 in this report; is that correct?

5 A. I'm looking for the -- yes, there are
6 subsections. Yes.

7 Q. Okay. And so subsection 15 of your report
8 contains all the technical notes related to your
9 opinions in this case?

10 A. It appears so, yes.

11 Q. Okay. And then all the bases for your
12 opinions in this section are contained within your
13 report?

14 A. The bases for opinions in section -- this
15 section contains opinions, does it not?

16 Q. Okay.

17 A. I don't think there are any opinions in this
18 section. Theorems and proofs and such.

19 Q. Did you personally create all of the
20 theorems related to your opinions in this case?

21 A. I did.

22 Q. Did you personally calculate all of the
23 theorems related to your opinions in this case?

24 MR. EWALT: Objection to form.

25 THE WITNESS: I don't know what you mean by

1 calculate a theorem. It is not a phrase that is
2 meaningful to me.

3 BY MS. ABSTON:

4 Q. Did you personally create all the theorems
5 in subsection 15 for this case?

6 A. Yes. All the theorems in subsection 15 I
7 created. And some of them after discussion with
8 members of my team, to state them in the best
9 possible form.

10 Q. And did you personally write the proofs for
11 all of your opinions in this case?

12 A. I personally wrote or reviewed the proofs
13 for all the theorems in this case.

14 Q. Who else would have written any of the
15 proofs that you relied upon in forming your opinions
16 in this case?

17 A. Drafts of the proofs would have been created
18 by members of my team, which are the -- who I have
19 listed before.

20 Oh, and one more that I haven't listed
21 before, actually. Zi Yang Kang, I should add to the
22 list.

23 Q. That's another Auctionomics team member?

24 A. Another Auctionomics team member, yes.

25 Q. And has he assisted -- or she or they --

1 assisted you in any way in the DOJ case as well or
2 just in the Eastern District of Texas case?

3 A. No, in the DOJ case as well.

4 Q. And just to be explicitly clear, which of
5 these proofs did you personally write?

6 A. Well, I wrote or contributed to writing or
7 checked every -- all of them. I mean, the -- there
8 is nothing here that is -- that's not my work, in the
9 same sense that I would put my name on work in a
10 research paper. You know, I sometimes have coauthors
11 or research assistants who help. Everything here
12 is -- relies on ideas of mine, and I have checked the
13 final versions.

14 Q. Okay. I want to flip to the beginning of
15 your report here and ask you some general questions.
16 So --

17 A. I was wondering if you were going to get
18 into the Greek notations.

19 Q. Not today. I mean, maybe, though. I've got
20 a little bit of time. Don't tempt me.

21 MR. EWALT: Something for the jury.

22 MS. ABSTON: Don't tempt me.

23 Q. So let's talk a little bit about your
24 methodology here. You understand that the defendants
25 have designated you as an expert who may testify

1 regarding principles of market design and Google's
2 conduct with respect to auction for display ads?

3 A. Yes.

4 Q. And you understand that you did not include
5 any specific section entitled "methodology" within
6 your report?

7 A. I guess that's right. Okay.

8 Q. Or did you include any specific sections
9 within your report pertaining to methodology alone?

10 A. There's no section entitled "methodology."

11 Q. Okay. And you understand that plaintiffs
12 are entitled to know about your methodologies that
13 you employed within this case?

14 A. Absolutely.

15 Q. And are there any known error rates
16 associated with the methodologies that you used to
17 form your opinions in this case?

18 A. Error rates associated with the
19 methodologies. So the -- the -- known error rates
20 associated with the methodology.

21 Well, let me see. Not here. Not there.

22 Well, in the empirical work, the empirical
23 work is subject to the usual kinds of errors that are
24 associated with empirical work. The theoretical
25 work, it is -- it is a matter of pure logic. So

1 there's no error between the assumptions and the
2 conclusions, but one can discuss the accuracy of
3 assumptions and whether they represent what's going
4 on.

5 What else? The simulations -- the
6 simulations rely on the accuracy of the empirical
7 work that underlies them that generates their
8 assumptions. And I realize that -- I named an error
9 rate in any of those things, but I'm trying to be
10 helpful here in terms of understanding any errors
11 that there might be. That's how you would assess
12 them.

13 Q. Okay. And how have you accounted for any
14 known error rates within the four corners of your
15 report?

16 A. Well, again, the theoretical work has no
17 error rate, other than mistakes, such as that you
18 saw. There's no known error rate of that sort.

19 The empirical work, the data sets are so
20 large that sampling error is effectively zero. There
21 isn't an error rate from sampling. So the -- and all
22 the theory and statistics about error rates relates
23 to sampling error.

24 The important errors in empirical work on
25 very large data sets is not related to sampling

1 errors. It's related to specification errors. You
2 could say that I was using the wrong model. There's
3 no known error rate for that.

4 Your experts would have to say, oh, no, he
5 used the wrong model, and that would be the only way
6 to identify errors there.

7 The simulations depend on sample size, and
8 we have spent a lot of money generating large
9 samplings in the simulations. Those error rates are
10 trivial. There is essentially -- they are
11 essentially zero as well.

12 And the conclusions followed from the
13 assumptions, the -- any claims of error would have to
14 challenge the assumptions.

15 And, of course, they could also result from
16 programming errors. If people have access to the
17 codes we used, they can try to replicate. And if
18 they find errors, they can point those out. But
19 those are not -- in statistics, we speak of standard
20 errors.

21 My favorite description is between standard
22 errors and nonstandard errors. Standard errors are
23 basically a result from sampling, and in data sets of
24 this size, that's zero, for all practical purposes.

25 And then we speak of nonstandard errors,

1 which really mean that somebody has specified
2 something incorrectly, used the wrong model, made a
3 coding error, and there are no standard rates for
4 those things.

5 Q. Okay. And did you calculate a numeric error
6 rate?

7 A. Did I calculate numeric error rates? I
8 looked at -- as I said, I looked at the -- the only
9 error rates which were calculable were standard error
10 rates, and found them so close to zero that they
11 weren't worth any attention.

12 Q. Okay. I think you used the word "trivial."
13 So you say trivial, but you didn't provide a number
14 in your report at all; correct?

15 A. That's right. I -- you know, you can work
16 those out. The -- for example -- yeah, they are
17 trivial. I think, right.

18 Q. Okay. And you said you spent a lot of money
19 sampling the simulations.

20 MR. EWALT: Objection to form.

21 BY MS. ABSTON:

22 Q. What would be considered a lot of money?

23 A. Well, the total -- the total amount of money
24 we spent on data and simulations reached seven
25 figures. A lot of money.

1 Q. Okay. Are there any critiques in the
2 display advertising industry regarding the
3 methodology that you used?

4 A. I'm not aware of such.

5 Q. How did -- are there any established
6 standards controlling the application of your
7 methodology?

8 A. Are you asking -- do you have a context for
9 that? I mean --

10 Q. In general? Are there any established
11 standards controlling the application of the
12 methodology that you employ within your report?

13 A. So the models that I use -- so the method --
14 as I say, the only -- the only real place that there
15 can be errors in -- with a dataset of this size is
16 with modeling assumptions. And for the most part, my
17 modeling assumptions about the -- about the data are
18 just the same -- are just the same as, for example,
19 Professor Weinberg and others have used.

20 So I haven't investigated alternative models
21 because I -- you know, there seems to be general
22 agreement among the experts as to which models are
23 applicable.

24 Q. Did you use any controls to verify the
25 accuracy of your conclusions?

1 A. Sometimes, yeah.

2 Q. On -- what controls did you employ to verify
3 the accuracy of your conclusions?

4 A. Well, for example, in this data -- in this
5 report, Google had issued some new data sets, both
6 for -- both for GAM and for Google ads --

7 (Reporter clarification.)

8 THE WITNESS: GAM, G-A-M. That's -- that's
9 the name of the data and Google ads data.

10 And we ran each of our methods using both
11 data sets to make sure that there were no qualitative
12 changes in the conclusions, and, indeed, there were
13 none. So that is an example of an empirical control.

14 Essentially we're looking for the only kind
15 of errors that matter in this -- in this analysis for
16 nonstandard errors, you know, to control that the --
17 that the coding is done correctly, we did everything
18 twice independently. And then when there were
19 differences, reconciled the differences.

20 To ensure that the modeling assumptions were
21 reasonable, well, there are lots of ways that one
22 might look at that. The seminal paper on that is one
23 that I wrote in 2015, when I was -- when I was
24 advising OpenX.

25 And, you know, we -- we adopted that. We

1 adopted the same kind of model that all of the
2 experts use, a so-called independent private values
3 model so that our conclusions could not be attributed
4 to model choice.

5 I was very careful.

6 BY MS. ABSTON:

7 Q. And did you consider alternative
8 methodologies?

9 A. Did I consider alternative methodologies? I
10 thought about alternative methodologies and decided
11 to stay with the industry standards and with the --
12 and with the same models that were used by the
13 plaintiffs' experts so that, again, to protect myself
14 from claims that I had cherry-picked or, you know,
15 that I had picked models to generate particular
16 conclusions.

17 Q. Okay. And what other alternative
18 methodologies did you consider?

19 A. Okay. You know, you keep calling them
20 methodologies, and I guess perhaps that's for legal
21 reasons, maybe. I'm trying to describe approaches
22 that one could take to reach, you know, these
23 evaluations. And the approaches one can take are to
24 use different models.

25 And, you know, I evaluated different models.

1 For example, the evaluation of the -- of the adverse
2 selection issues in connection with DEA -- with EDA,
3 use a different model from the main model that's used
4 throughout the rest to investigate whether there is
5 any issue of -- of adverse selection in EDA.

6 Q. Are there any limitations to your
7 methodology that could affect the opinions that
8 you've reached in this case?

9 A. Well, the limitations, again, have -- would
10 have to do with what I like to call nonstandard
11 errors, for which there are no -- no measurements and
12 which ought to be entirely accessible to the Court
13 and to people with less technical training.

14 The issue is have we made unrealistic
15 assumptions that cause these models or analyses not
16 to correspond to reality. And we have been careful
17 not to do that and to -- where we do make
18 assumptions, to make them coincide with plaintiffs'
19 assumptions so that we're not subject to that line of
20 criticism.

21 Q. Okay. And were the limitations or potential
22 limitations that you just described disclosed within
23 your report?

24 MR. EWALT: Objection. Form.

25 THE WITNESS: I believe they are. You know,

1 I discuss, as the other experts do as well, what is
2 the relevant model. I wouldn't be able to put my
3 finger on it right now, but it's discussed both in my
4 report and in plaintiffs' experts' reports about why
5 they choose the model they choose.

6 And when I state -- and, you know, and where
7 I am using those, one of the reasons I state theorems
8 is that I want to say these are the assumptions that
9 lead to this conclusion. And if you disagree with
10 this conclusion, you have to disagree with one of the
11 assumptions in the theorem. It's -- logically
12 follows.

13 BY MS. ABSTON:

14 Q. Do you know whether your methodology has
15 ever been rejected by a federal court?

16 A. No. I'm not aware of it being rejected by
17 any court at any level.

18 Q. Okay. And then how did you verify the
19 accuracy of the data you relied upon in your
20 analysis?

21 A. The data, for the most part, we have no
22 independent sources to rely upon. The data was
23 generated for -- for GAM and for -- Google Ad
24 Networks were generated by Google.

25 We did have the data generated twice. There

1 was data generated in the federal case, and there was
2 data generated again in the Texas case. And so when
3 we did our analyses for the Texas case, we used the
4 new data in the main report and the -- and verified
5 it with the federal data, which is included in an
6 appendix or an exhibit or something later in the --
7 later in the report to make sure that the conclusions
8 were unchanged, or at least qualitatively unchanged.

9 Q. Okay. So there was a difference in the data
10 production between what you received from the DOJ
11 case and what you received here for the Eastern
12 District of Texas case?

13 A. Yes.

14 MR. EWALT: Objection to form.

15 THE WITNESS: There was new data made
16 available in the Texas case.

17 BY MS. ABSTON:

18 Q. And what was that new data pertaining to?

19 A. Well, this is both the GAM dataset and the
20 Google Ad Network dataset. They were selected
21 differently, so to speak. That is the -- the -- I
22 think the time period from which they were drawn was
23 a different week or different month. I don't recall
24 exactly what the weeks and months were as I sit here,
25 but it's listed in my report.

1 And the frequency. So when the -- Google
2 has a huge number of these impressions that are
3 served, and I think in one case it was a [REDACTED]
4 [REDACTED], and maybe in the other
5 case it was [REDACTED]. So
6 that the -- so they were different.

7 And -- but each of them is intended to be --
8 uses what are considered best methods -- assuming
9 Google did it correctly, uses what are considered
10 best methods to derive a random sample of data from a
11 period of time. They are different periods of time,
12 slightly different selection methods. We studied
13 both.

14 Q. Okay. And when you say "assuming Google did
15 it correctly," you're referring to that Google made
16 the selection of the data to produce to you?

17 A. Yes. Google -- Google did the selection.
18 They drew it from their ordinary production --

19 Q. Okay.

20 A. -- which I take to be reliable.

21 Q. And you developed all of this methodology
22 yourself; is that correct?

23 A. Yes.

24 Q. Okay. And we've discussed today that you
25 considered other possible explanations and

1 conclusions, but you chose to reject those; is that
2 correct?

3 A. That's too vague and abstract for me to give
4 a yes-or-no answer to.

5 Q. Did you consider other possible explanations
6 or conclusions --

7 A. Regarding what?

8 Q. -- for your methodology in this case?

9 MR. EWALT: Objection to form.

10 THE WITNESS: Yeah, that's not a totally
11 meaningful question to me. I've -- I've done my best
12 to interpret your -- your term "methodology" and to
13 be explicit about what I'm talking about, but the
14 question is going to have to address what I did in
15 order for me to describe what I did.

16 BY MS. ABSTON:

17 Q. Okay. Do you prefer we use a different term
18 other than "methodology"?

19 A. Yeah, I have described each -- each of the
20 components of things I did. There are -- there are
21 theoretical methods, where logic drives the
22 conclusion, and there is -- where logic drives the
23 conclusion. If the logic is correct, then it's
24 correct. There's no error rates.

25 I've described data analyses. These

1 datasets are so large that the sampling error rates
2 are essentially zero. And the -- any error would be
3 involved in specifications.

4 Did I consider alternative specifications,
5 yes. Although we chose to use the most common
6 specification, which is also the one -- I'm just
7 repeating myself here -- is also the one chosen by
8 plaintiffs' experts. They chose the common one, and
9 I decided I didn't want to fight over what would be
10 the best specification. I thought it was reasonable,
11 and so I chose that one as well.

12 Where there -- where there came to be claims
13 about adverse selection that aren't included in the
14 usual -- in the usual -- in the independent private
15 values model, which plaintiffs' experts used as well,
16 then I expanded the model to include the possibility
17 of adverse selection and measured it and found it to
18 be almost nonexistent.

19 So I don't know what else there is to say
20 about -- yes, I was quite careful about deciding how
21 to do these analyses.

22 Q. And you considered all of the available data
23 when forming your opinions in this case?

24 A. All the data produced by Google.

25 Q. Okay. And you included the data in the

1 documents that supported your -- your conclusions
2 that could be found within -- strike that.

3 Isn't it true that you included only data in
4 documents that supported your conclusions when making
5 this report?

6 A. I'm sorry, I don't remember selecting only
7 data in documents -- the data did support our
8 conclusions. The conclusions that were reached were
9 supported by the data.

10 There wasn't data that I -- if all the data
11 is consistent with my conclusions, it's because all
12 the data is consistent with my conclusions, not
13 because I've done anything underhanded to -- to
14 manipulate the -- or select data.

15 Q. Can you point me to a single document that
16 you included in your report that was contrary to the
17 conclusions that you reached?

18 A. No.

19 Q. Okay. So there was no set of data that was
20 contrary to your conclusions?

21 A. We're talking -- are we talking about data
22 value -- you're using these terms in ways that are
23 unfamiliar to me. "Data" means data. "Documents"
24 means documents. There are millions of documents,
25 and I don't know what's in all of the documents.

1 The -- we were talking about data, and what
2 I understood "data" to mean, what Google had
3 produced, the GAM data and the Google Ad Network
4 data. And apparently you mean "data" -- you're using
5 that term to mean something different.

6 Q. How much time did you dedicate to developing
7 your methodology in this case?

8 A. Okay. To developing my methodology.

9 As I've described, we approached each piece
10 separately, according to the method that was
11 associated with the piece. So I cannot separate
12 development of methodology.

13 For example, when people -- if we were
14 looking -- well, should I make examples? I don't
15 know if -- that would carry us too far, I'm afraid.
16 You can ask about them if you wish.

17 But the methodology was not developed
18 separately from the analysis. I took a look at
19 each -- each question at issue, decided in connection
20 with thinking about that question what's the best way
21 to think about it, what's the best available
22 evidence, and ran with it. And I didn't have a
23 separate period of developing methodology.

24 Q. Okay. And have there been advancements in
25 the application of your methodology that you have not

1 incorporated into this report?

2 A. No.

3 Q. Do you know for certain?

4 A. Do I know for certain? Well, I don't know
5 everything in the world that's been written.

6 I am pretty well connected to the auction
7 literature. Some people consider me to be the world
8 expert in this area, and -- and I have -- I think
9 that if somebody had done something significant here,
10 I would know about it. They would probably write to
11 me about it.

12 Q. And, Dr. Milgrom, you're here today to
13 testify as an expert witness on behalf of Google, and
14 I want to talk to you a little bit more about some of
15 your other expertise that you just referenced.

16 A. Uh-huh.

17 Q. For the opinions that you have expressed in
18 your report in this specific case, do you hold
19 yourself out to be an expert in advertising?

20 A. In advertising generally? Not in
21 advertising generally, no.

22 Q. Okay. For the opinions that you have
23 expressed in your report in this case, are you
24 holding yourself out to be an expert in marketing?

25 A. In marketing generally, no.

1 Q. Are you holding yourself out to be an expert
2 in technology?

3 A. Well, technology is a very big field. I
4 have -- I have expertise in some areas about
5 marketing and in some areas about technology. And if
6 these questions are going to be about generally, with
7 limits -- within limits, I consider myself experts in
8 several of these fields.

9 Q. For the opinions that you have expressed in
10 your report in this case, are you holding yourself
11 out to be an expert in ad networks?

12 A. An expert in ad networks specifically? Not
13 in ad networks specifically, no.

14 Q. For the opinions that you have expressed in
15 your report in this case, are you holding yourself
16 out to be an expert in technology advertising?

17 A. I know a lot about advertising technology.
18 There are things that I don't know as well. I think
19 if someone approached me and asked for expert
20 opinions about advertising technology, I would
21 consider myself qualified.

22 Q. Are you holding yourself out to be an expert
23 in this case in computer science?

24 A. I am not.

25 Q. Okay. And I want to -- I want to go back.

1 For the -- I want to go back to the question
2 of -- for the opinions that you have expressed for
3 your report in this case, are you holding yourself
4 out to be an expert in technology advertising?

5 MR. EWALT: Objection to form.

6 THE WITNESS: I think you mean "advertising
7 technology."

8 BY MS. ABSTON:

9 Q. Advertising technology or technology
10 advertising, whatever you prefer.

11 Are you holding yourself out to be an expert
12 in advertising technology or technology advertising
13 in this case?

14 A. Okay. So I understand "technology
15 advertising" to mean people who show ads for
16 technology, and I understand "advertising technology"
17 to -- what modifies -- what modifies what changes.

18 I know a lot about advertising technology.
19 And in -- again, if -- if I were approached to -- for
20 a consulting engagement related to advertising
21 technology, I would consider myself to have
22 sufficient expertise to do that.

23 Q. Okay. Are you holding yourself out to be an
24 expert in this case on algorithmic design?

25 A. Algorithmic design. So there's a field

1 called algorithmic mechanism design, which
2 Professor Weinberg holds himself out to be an expert
3 in. Perhaps that's what you're referring to.

4 Algorithmic design is partly about the
5 construction of algorithms in part. And algorithm
6 mechanism design is about the construction of
7 algorithms taking account of their effect on
8 incentives.

9 And with regard to the latter, I've been
10 keynote speaker at computer science conferences on
11 that subject. So I think I do have expertise on
12 algorithmic mechanism design. More broadly, in
13 algorithmic design, I would not claim expertise.

14 Q. Okay. And to be clear, I'm not asking you
15 generally about your expertise, but just asking about
16 the opinions you're offering within this report
17 today. So let's --

18 A. Oh, I see. So you want to know whether I'm
19 holding myself out -- I hold myself out to be an
20 expert on the opinions that I express in this report,
21 to have the necessary expertise for every opinion
22 that's listed in this report.

23 Q. And so for the opinions that you've
24 expressed in your report in this case, are you
25 holding yourself out to be an expert in monopolies?

1 A. I don't -- I don't opine in this case about
2 monopolies. So I'm not using any expertise of that
3 sort.

4 Q. And for the opinions that you have expressed
5 in your report in this specific case, are you holding
6 yourself out to be an expert in machine learning?

7 A. I am not, no.

8 Q. Okay. And for the opinions that you have
9 expressed in your report in this case, are you
10 holding yourself out to be an expert in antitrust
11 law?

12 A. I am not.

13 Q. And for the opinions that you have expressed
14 in your report in this specific case, are you holding
15 yourself out to be an expert in consumer protection
16 law?

17 A. I am not.

18 Q. And for the opinions that you have expressed
19 in your report in this specific case, are you holding
20 yourself out to be an expert in deceptive practices?

21 A. I am not.

22 Q. And for the opinions that you have expressed
23 in your report in this specific case, are you holding
24 yourself out to be an expert in anticompetitive
25 practices?

1 A. An expert in -- I have expertise in
2 anticompetitive practices that is relevant to my
3 opinions in this case.

4 Q. Okay. And then are you offering any
5 opinions today regarding the technical operation of
6 Google's products?

7 A. I am not a hundred percent sure what that
8 means.

9 The -- the economic technology of the
10 operation, I am offering opinions about, yes.

11 Q. Are you offering opinions about the
12 technical operation of any other adtech products?

13 A. Other than what?

14 Q. Outside of -- are you offering -- let me
15 rephrase.

16 Are you offering any opinions about the
17 technical operation of any other adtech products
18 outside of Google's products today?

19 A. Well, yes, there's -- I am. I have offered
20 such opinions, yes.

21 Q. And those opinions are contained within your
22 report?

23 A. Yes.

24 Q. Okay. Okay. I'm going to clarify some
25 additional terms and concepts that you detail within

1 your July 30th, 2024, expert report.

2 A. Okay.

3 Q. Is that okay?

4 Okay. In your field, how is the term
5 "auction" generally defined?

6 A. Auction -- so just to be clear for the
7 record here, that there are places where the -- where
8 people distinguish auctions in sealed tenders, for
9 example. That's not typically distinguished in my
10 field or in this industry. The process that consists
11 of sealed bids or a multistage process can all be
12 auction processes.

13 Auction processes is a resource allocation
14 process in which the bids made by participants
15 determine the allocations and prices.

16 Q. Okay. And what is an example of an auction?

17 A. Well, eBay, Sotheby's are examples of
18 dynamic auctions with multiple stages that take place
19 over time.

20 And the -- this case focuses primarily, or
21 exclusively, on sealed bid auctions, as we call them,
22 which are auction rules in which bidders are
23 presented with the opportunity to bid on a single
24 item, and there are many other kinds of auctions as
25 well.

1 Q. In -- do you have a different definition for
2 the term "auction," other than the generally accepted
3 definition that you just gave?

4 A. Do I have a different definition? I use
5 words to communicate, and I understand that words
6 mean different things in different contexts. So
7 sometimes I use the term differently.

8 Q. In your field, how is the term "fairness"
9 generally defined?

10 A. Fairness. So the -- "fairness" is used in
11 economics in fairly narrow senses. Usually some
12 variation of equal treatment of equals.

13 Q. In your field, how is the term "efficiency"
14 generally defined?

15 A. Efficiency -- an allocation is efficient.
16 "Efficient" is an adjective that's used to describe
17 allocations and processes, and it has -- it has
18 slightly different meanings in each application. But
19 an allocation is efficient if there is no other
20 allocation that makes some people better off and
21 nobody else worse off.

22 Q. And in your field, does the term
23 "benefitted" generally have a specific definition?

24 A. Just that --

25 Q. Strike that.

1 In your field, does the term "benefitted"
2 have a generally accepted definition?

3 A. Yes.

4 Q. And what would be the generally accepted
5 definition of the term "benefitted"?

6 A. That the person benefits if some measure of
7 their welfare increases.

8 Q. Okay. And are you missing any information
9 that you believe you need in order to form your
10 July 30th Eastern District of Texas expert report
11 opinions at trial?

12 A. The information that I have here is
13 sufficient for the conclusions that I reach here, and
14 there may be additional conclusions that are
15 rebuttals of the -- that rebut the plaintiffs'
16 experts, which may or may not require additional
17 information.

18 Q. Okay. And as you sit here today, you've
19 completed all of the work and opinions that you plan
20 to offer at trial in this case?

21 MR. EWALT: Objection to form.

22 THE WITNESS: It's a little bit different
23 from what I just said, as I think you know.

24 The things that I offer at trial will be
25 determined by the questions that I'm asked at trial,

1 and they will likely include opinions about the new
2 claims and the new analyses that have been made by
3 plaintiffs' experts.

4 BY MS. ABSTON:

5 Q. Let's quickly look at your table of contents
6 in Exhibit 13. I believe your table of contents
7 starts on page 1.

8 A. Yes.

9 Q. And page 1 starts with Section 1, and I
10 think you have -- let me see here. Oh, yeah, you've
11 got -- let's see, 15 different sections within your
12 report; is that correct?

13 A. It appears that that's correct, yes.

14 Q. Okay. And all of these sections in your
15 report contain all of the opinions you plan on
16 offering in this case?

17 MR. EWALT: Objection to form.

18 THE WITNESS: Except as I've previously
19 described in my last answers to your questions.

20 BY MS. ABSTON:

21 Q. Okay. All right. Let's look at your
22 summary of opinions.

23 A. Okay.

24 Q. I believe that starts on page 15.

25 A. Okay.

1 Q. So each of the subsections of your summary
2 of opinions correspond to the opinions and sections
3 within your report; is that correct?

4 MR. EWALT: Objection to form.

5 THE WITNESS: Well, certainly at the
6 beginning, that's what -- in Section A, about how
7 Google's program benefitted its customers, I -- those
8 correspond to sections.

9 The criticisms of the plaintiffs' experts
10 are not organized in the same way.

11 BY MS. ABSTON:

12 Q. Okay. And just to clarify. Does this
13 report contain all of the opinions that you have
14 disclosed to date --

15 A. This is --

16 Q. -- in this case?

17 A. This is my disclosure. I don't
18 understand -- I don't understand the question.

19 Q. Okay. So if I wanted to find the bases for
20 each of these opinions in your summary of your
21 opinions, I would review the remainder of the table
22 of contents in your report to locate those; is that
23 correct?

24 A. That's correct, yes.

25 Q. Okay. Okay. Let's go back to what you've

1 been doing the last few months. You can set this
2 aside for a moment.

3 Oh, actually, before we do that, let me --
4 let me look at this here.

5 Okay. To which of these state expert
6 reports are you offering opinions in response to?

7 A. Well, let's see. I mention -- I mention
8 Pathak, Parag Pathak. I mention Josh Gans. I
9 mention Matt Weinberg.

10 I think, you know, this is a 500-page report
11 which I've looked at -- that I haven't totally
12 reviewed in the last -- extremely recently, so I
13 think the report speaks for itself. But certainly it
14 includes Weinberg and Pathak and Gans.

15 Q. Okay. When was the last time you reviewed
16 this report?

17 A. Well, I'm looking at it right now. I think
18 it's a couple minutes ago, is one answer to that
19 question.

20 Q. This one doesn't have a spot on your desk
21 next to the DOJ report, does it?

22 A. It does not, no.

23 Q. Okay.

24 A. It's because -- I will comment that's
25 because I look at this one in electronic form. The

1 DOJ report is sort of history, and I have it in paper
2 form, so I can file it away.

3 Q. Okay.

4 A. Yeah.

5 Q. Okay. So you don't have any changed
6 opinions that -- or strike that.

7 Do you have any opinions that you believe
8 have changed since you've issued your July 30th,
9 2024, report?

10 A. I don't believe any of my opinions have
11 changed. My opinions have not changed. I think it's
12 more than a belief. My opinions have not changed
13 since this report.

14 Q. Okay. Now we are going to step into what
15 you've been doing the last few months. And let's
16 talk about your trial testimony in the DOJ trial,
17 okay?

18 A. All right.

19 Q. Do you recall when you were told that you
20 were going to testify at the DOJ trial?

21 A. When I was told that I was going to testify?
22 I don't even know, you know, when it was sort of
23 decided. I did this the entire period planning to
24 testify, and I was never told that I wasn't going to
25 testify, I guess is the -- yeah.

1 Q. And how long were you on the stand
2 testifying at the DOJ trial?

3 A. Well, all morning and part of the afternoon
4 on -- on that Tuesday that I testified.

5 Q. Okay. I believe that -- well, let's back up
6 a little bit.

7 When did you first attend the DOJ trial?

8 A. I was present -- I don't remember the dates.
9 I think I was present the previous week. I certainly
10 heard some testimony the previous week.

11 You will recall that this is the first time
12 I have testified as a witness at trial, and I found
13 it very informative to see the testimony that -- that
14 others made, and it also was informative about what I
15 would be rebutting.

16 And then -- then there was quite a bit of
17 work to do to sculpt my testimony to fit the issues
18 of the case.

19 Q. Have you ever attended a trial in person?

20 A. I have not.

21 Q. Okay. So this is your first time being in
22 the courthouse. So you see the -- well, strike that.

23 Did you attend opening statements for the
24 DOJ trial?

25 A. No.

1 Q. Okay.

2 A. I was unfortunately unable to be there.

3 Q. Did you read a transcript of the opening
4 statements of the DOJ trial presented?

5 A. Not of the full transcript, no, I did not.

6 Q. Did you read Google's opening statements
7 that were presented on September 9th in the DOJ
8 trial?

9 A. I did not.

10 Q. Okay. Did you read the plaintiffs' opening
11 statement?

12 A. I read -- I did look at the plaintiffs'
13 opening statements, and especially, as you can
14 probably tell, their -- what did they call it --
15 their demonstratives, the slides that they presented.

16 Q. So you reviewed demonstrative slides.

17 Did you review any of the exhibits that were
18 used at the DOJ trial leading up to your testimony?

19 A. Yes.

20 Q. Do you recall which exhibits you reviewed?

21 A. You're hoping I can describe them? Is that
22 the hope here? What are we --

23 Q. How many exhibits did you review leading up
24 to your testimony in the DOJ trial?

25 A. One thing that I must admit that it took me

1 some time to become clear on is what's called an
2 exhibit, and what else was placed in front of
3 witnesses that wasn't called an exhibit. So at this
4 point I'm not sure, since I didn't know the
5 difference when I began the trial, that I can clarify
6 those for you.

7 Q. But you did review documents -- either they
8 were exhibits or demonstrative, to use legal terms --
9 that were presented to witnesses at the DOJ trial?

10 A. I did review some, yes.

11 Q. Okay. And do you recall which witnesses
12 those documents, exhibits, demonstratives were used
13 with?

14 A. Oh, boy. I'm blanking on names right now.
15 Pardon me a moment.

16 Q. Well, did you --

17 A. If we had the names of the witnesses in
18 front of me, I could pull them up more easily, yeah.

19 Q. Did you -- I will ask it this way.

20 Were there selective witnesses that you read
21 their trial testimony for before you testified at the
22 DOJ trial?

23 MR. EWALT: Objection to form.

24 THE WITNESS: I would say no. I think
25 the -- the witnesses that I witnessed, that I

1 personally witnessed, were the ones that I paid
2 attention to, and I was aware as the -- as their
3 testimony proceeded that there were certain documents
4 of interest to me.

5 BY MS. ABSTON:

6 Q. And how many days did you attend trial,
7 leading up to your trial testimony?

8 A. I think I was present for -- this is a guess
9 now, because I don't recall exact dates. But I was
10 probably present like four days before my own
11 testimony.

12 Q. Okay. And did you ever attend trial after
13 you testified?

14 A. I think not.

15 Just a moment. Maybe. It's all a bit of a
16 fog right now. I'm sorry.

17 Q. That's okay. I will represent to you, I
18 believe you testified on September 24th.

19 Does that sound right?

20 A. A Tuesday, I think.

21 Q. Okay.

22 A. And -- and I had wanted to see some
23 testimony, and I think it -- I think it was testimony
24 I had wanted to see after, but maybe not. I'm sorry,
25 I just do not recall the order.

1 Q. Okay. Did members of your Auctionomics team
2 also attend the DOJ trial with you?

3 A. Yes.

4 Q. Okay. Did members of your Auctionomics team
5 also just generally attend the DOJ trial without you?

6 A. No.

7 Q. Okay. And how many members of the
8 Auctionomics team accompanied you to trial?

9 A. Four.

10 Q. And did you assist in creating any
11 demonstratives for your DOJ trial testimony?

12 A. Yes.

13 Q. And which demonstratives did you assist in
14 creating?

15 A. Well, if you've seen the testimony, you will
16 know that a big chunk of my testimony involved
17 criticizing the demonstratives that were presented by
18 the DOJ, claiming to explain how -- claiming to
19 explain how auctions worked, claiming to explain how
20 dynamic allocation worked.

21 And I had rebuttal demonstratives that were
22 created that corrected the errors and misleading
23 claims on those. And I worked with my team on that
24 to make them simple and understandable for the Court.

25 Those are the ones that leap to mind

1 immediately, actually. And then -- let's see. Oh,
2 yes, and then the -- there was -- what's his
3 name's -- Professor Weintraub's demonstrative about
4 scale, and I had the rebuttal demonstrative that was
5 a rebuttal demonstratives that were showing how
6 exaggerated Professor Weinberg's [sic] conclusions
7 were. So I remember that.

8 That's three. Those are the ones that pop
9 to mind.

10 Q. Okay. And you said "Professor Weinberg,"
11 but did you mean Professor Weintraub?

12 A. -traub. Yes, Gabriel Weintraub. Did I say
13 Weinberg? I apologize.

14 Q. That's okay.

15 And which members -- which specific
16 Auctionomics team members attended the DOJ trial with
17 you?

18 A. Well, Professor Skrzypacz over there;
19 Mitchell Watt, who is in the other room; Hunter Guru,
20 and Logan Mandol.

21 Q. Okay. And did you take any notes during the
22 trial?

23 A. It's not my custom to take notes. I usually
24 take mental notes. So the answer is no.

25 Q. Okay. Did anyone from Auctionomics take

1 notes during the trial?

2 A. I believe they did.

3 Q. Okay. And did you discuss their notes that
4 they took during the trial?

5 A. I had discussions with them, which I
6 imagine, since they use notes, were probably informed
7 by those notes.

8 Q. Okay. And did you speak with any of the
9 other Google experts while you were attending the
10 trial?

11 A. Only socially. I said, hello, nice to see
12 you, all that kind of thing, but --

13 Q. Did you --

14 A. Yeah.

15 Q. -- speak with any of the plaintiffs' DOJ
16 experts while you were attending the trial?

17 A. Similarly.

18 Q. Okay.

19 A. I said hello to Professor Weintraub. I
20 think only Professor Weintraub.

21 Q. And have you concluded all of your work
22 relating to the DOJ case?

23 A. As far as I know, I have. If I'm asked to
24 do something else, I'd consider it. But I think I'm
25 finished. This is -- remember, I don't know the

1 process. My first one.

2 MS. ABSTON: Understandable.

3 Okay. I think we have reached a -- do we
4 want to take a quick break for a moment, if that
5 works for everyone?

6 THE WITNESS: Certainly.

7 THE VIDEOGRAPHER: The time is 4:16 p.m.
8 Pacific Time. We are going off the record.

9 (Recess taken.)

10 THE VIDEOGRAPHER: The time is 4:37 p.m.
11 Pacific Time. We are back on the record.

12 BY MS. ABSTON:

13 Q. Okay, Dr. Milgrom. I know we've had a long
14 day today, but I think we're almost close to the end,
15 so I just want to ask you a few more questions about
16 some of the materials you relied upon in issuing your
17 July 30th, 2024, report.

18 Does that sound okay?

19 A. Fine with me.

20 Q. Okay. And we just took a break. Did you
21 speak with counsel over the break?

22 A. Just chitchat.

23 Q. Okay. Did you talk about the contents of
24 your testimony today?

25 MR. EWALT: Objection. I'm going to

1 instruct you not to answer questions about the
2 substance of your conversations with counsel.

3 BY MS. ABSTON:

4 Q. And you're going to follow the instruction
5 of your attorney?

6 A. I will.

7 Q. Okay. So you're welcome to pull out
8 Exhibit 3 if you want to, talking about your
9 Appendix B, materials relied upon, but I'm not sure
10 you will need it. But feel free to do that.

11 We've briefly talked in passing about when
12 you have seen the other Google expert witnesses at
13 the DOJ trial.

14 Do you recall that?

15 A. I'm sorry. That was --

16 Q. Okay. We --

17 A. My head just spun. We have seen the what?

18 Q. We have talked today in passing about when
19 you've seen other Google expert witnesses at the DOJ
20 trial.

21 Do you recall that?

22 A. Yes.

23 Q. Okay. And --

24 A. At the DOJ --

25 Q. And are you aware of all of the other Google

1 expert witnesses that have been retained here for
2 this case?

3 A. No.

4 Q. Okay. Do you -- I want to walk through a
5 few of the names, just to see if you know any of them
6 personally or -- or by reputation?

7 Does that sound okay?

8 A. Yes.

9 Q. Okay. Do you personally know Donna Hoffman?

10 A. I do not.

11 Q. Have you ever interacted with Donna Hoffman
12 professionally?

13 A. No.

14 Q. Have you -- or do you personally know
15 Douglas Skinner?

16 A. No.

17 Q. Have you interacted with Douglas Skinner
18 professionally?

19 A. No.

20 Q. Have you reviewed Douglas Skinner's report
21 issued in this case?

22 A. No.

23 Q. Okay. Have you reviewed Donna Hoffman's
24 report issued in this case?

25 A. No.

1 Q. Do you personally know Itamar Simonson?

2 A. No.

3 Q. Have you interacted with Itamar Simonson
4 professionally?

5 A. Well, his name rings a bell, but I can't
6 place who that is. So I guess not.

7 Q. Okay. And did you review Professor
8 Simonson's report issued within this case?

9 A. No.

10 Q. Okay. Do you personally know Martin Rinard?

11 A. No.

12 Q. Have you interacted with Martin Rinard
13 professionally?

14 A. I have had one phone conversation with him,
15 which I've described already. And professionally,
16 meaning in connection with this case.

17 Q. Okay. And have you reviewed Professor
18 Rinard's report in this case?

19 A. No.

20 Q. Do you personally know Steven Wiggins?

21 A. Personally, no.

22 Q. Okay. Have you interacted with Steven
23 Wiggins professionally?

24 A. Steven Wiggins is actually -- I hadn't
25 really -- the name hadn't clicked before. Possibly.

1 I might know Steven Wiggins.

2 Q. Okay. Are you talking in a -- -- strike
3 that.

4 Do you possibly know Steven Wiggins
5 personally?

6 A. I think we may have met like 20 years ago.
7 I mean, I don't -- I think he and I may have met 20
8 years ago, if it's who I'm thinking of.

9 Q. Okay. And have you interacted with him in a
10 professional sense?

11 A. No.

12 Q. Do you personally know Jason Nye?

13 A. No.

14 Q. Okay. Have you ever interacted with Jason
15 Nye professionally?

16 A. No.

17 Q. Do you personally know Michael Baye?

18 A. I have met Michael Baye, yeah.

19 Q. Okay. Have you interacted with Michael Baye
20 professionally?

21 A. Have I interacted with Michael Baye
22 professionally? Prior to this case, prior to the DOJ
23 case, we -- there was a planning meeting where I met
24 him.

25 Q. Okay. And was that planning meeting

1 connected to ongoing Google litigation?

2 A. Well, to the litigation that's taking place
3 now, yes.

4 Q. Okay. And about what year did you meet
5 Michael Baye?

6 A. Well, at the very beginning. So it was --
7 what year was I -- did I first get involved here?
8 What year did I first get involved here? I'm sorry,
9 I forgot. Time is -- I have trouble keeping track of
10 time.

11 Q. Okay. We can just establish that you met
12 Michael Baye when you were originally retained for
13 the DOJ case; would that be correct?

14 A. I think that's probably right.

15 Q. Okay. And if you later discover that you
16 were originally retained for the Eastern District of
17 Texas case first, it would be whatever Google case
18 you were retained for is when you met Michael Baye --

19 A. Yeah, when we were talking about -- yeah,
20 who would do what, yeah.

21 Q. Okay. And have you reviewed Michael Baye's
22 report issued in this case?

23 A. No.

24 Q. Okay. And then do you personally know
25 Professor Ghose?

1 A. No.

2 Q. Okay. And have you ever interacted with
3 Professor Ghose professionally?

4 A. No.

5 Q. Are you aware Professor Ghose has been
6 de-designated as an expert in this case?

7 A. No.

8 Q. And you didn't review his report in any way?

9 A. No.

10 Q. Okay. And do you recall Google's experts in
11 the DOJ trial by name?

12 A. I'm sure if you read their names, I would
13 probably remember some of them.

14 Q. Okay. And have you worked on any other
15 cases with any of the experts that Google has
16 retained in this case?

17 MR. EWALT: Objection to form.

18 THE WITNESS: That Google has retained in
19 this case. No.

20 BY MS. ABSTON:

21 Q. Okay. And I believe you've testified today
22 that you have reviewed all of the Plaintiff experts'
23 rebuttal reports that were issued on September 9th;
24 is that correct?

25 A. All of the plaintiffs' experts' rebuttal

1 reports? I'm not a hundred percent sure.

2 Q. Okay. Do you recall specific plaintiffs'
3 expert rebuttal reports that you reviewed?

4 A. The one I reviewed most closely was Matt
5 Weinberg's report, yeah.

6 Q. But you can't recall any others that you --

7 A. That's where my attention focused, yes.

8 Q. Okay. So let's walk through this for a
9 minute.

10 Do you personally know -- I want to ask you
11 about your connections to any plaintiffs' experts in
12 this case.

13 So do you personally know Joshua Gans?

14 A. He was my student.

15 Q. Have you interacted with Joshua Gans
16 professionally?

17 A. Yes. I directed his Ph.D. dissertation, for
18 starters.

19 Q. Okay. And have you reviewed his opening
20 report that was issued in this case?

21 A. Yes.

22 Q. And have you reviewed his rebuttal report
23 that was issued in this case?

24 A. I looked at it, anyway, yes.

25 Q. Okay. What are your opinions, as you're

1 sitting here today, that you plan to offer at trial
2 in this case relating to Joshua Gans' rebuttal
3 report?

4 MR. EWALT: Objection to form.

5 THE WITNESS: Oh, I -- as I have said, I
6 don't have plans to -- to offer an opinion in the
7 case. As far as -- as far as I understand, it's the
8 attorneys who will tell me which issues to focus on,
9 and then I will carefully develop my opinions with
10 that in mind.

11 BY MS. ABSTON:

12 Q. Okay. So any opinions you have relating to
13 Joshua Gans would be a part of your July 30th, 2024,
14 report --

15 MR. EWALT: Objection to form.

16 BY MS. ABSTON:

17 Q. -- absent if you're asked questions at
18 trial?

19 MR. EWALT: Objection to form.

20 THE WITNESS: No, I didn't say that. I --
21 you know, his -- his rebuttal report would also
22 contain statements that I would -- that I might
23 respond to at trial.

24 BY MS. ABSTON:

25 Q. Okay. And are you able to sit here today

1 with specificity and point out which statements
2 contain -- that Joshua Gans' rebuttal report contains
3 that you plan to offer opinions on at trial?

4 MR. EWALT: Objection to form.

5 THE WITNESS: There are several problems
6 with that question. One is that, as I've told you, I
7 don't have plans. But that I could -- if I tried to
8 turn that into a meaningful question that I would
9 want to respond to, if I had infinite time or
10 something like that -- I can't respond with
11 specificity anyway, so --

12 BY MS. ABSTON:

13 Q. Okay. Do you have any opinions, as you sit
14 here today, that have developed about Dr. Gans'
15 rebuttal report?

16 A. I have preliminary opinions, yes.

17 Q. Are you able to speak to those?

18 A. I am not. They haven't -- gotten anything
19 that I'm prepared to assert as a -- as a professional
20 opinion at this time.

21 Q. Okay. Do you personally know John Chandler?

22 A. No.

23 Q. Have you ever interacted with John Chandler
24 professionally?

25 A. No.

1 Q. Have you ever reviewed John Chandler's
2 opening report?

3 A. I think so. I don't recall, yeah.

4 Q. Have you reviewed John Chandler's rebuttal
5 report?

6 A. I think it crossed my desk, but I don't
7 think I've studied it, no.

8 Q. Okay. What are your opinions, sitting here
9 today, that you -- or strike that.

10 Do you have any opinions, as of today, about
11 Dr. Chandler's rebuttal report?

12 A. As I sit here today, I have no opinions
13 prepared to offer.

14 Q. Okay. Circling back to Professor Gans for a
15 second. What's your opinion of Dr. Gans as an
16 economist?

17 A. He's a very creative man and well spoken,
18 and he's a good economist.

19 Q. Do you personally know Nancy Mathiowetz?

20 A. No.

21 Q. Have you ever interacted with Nancy
22 Mathiowetz professionally?

23 A. No.

24 Q. Have you reviewed Nancy Mathiowetz' rebuttal
25 report?

1 A. I don't recall that report.

2 Q. Okay. And do you have any opinions
3 developed as of today about Dr. Mathiowetz' rebuttal
4 report?

5 A. No.

6 Q. Do you personally know Zubair Shafiq?

7 A. No.

8 Q. Have you interacted with Zubair Shafiq
9 professionally?

10 A. No.

11 Q. Have you reviewed Zubair Shafiq's rebuttal
12 report issued in this case?

13 A. I don't recall.

14 Q. Okay. Do you have any opinions developed as
15 of today about Professor Shafiq's rebuttal report?

16 A. No.

17 Q. Okay. Do you personally know David DeRamus?

18 A. No.

19 Q. Have you interacted with David DeRamus
20 professionally?

21 A. No.

22 Q. Have you reviewed David DeRamus's rebuttal
23 report issued in this case?

24 A. I don't recall his report.

25 Q. Do you have any opinions developed as of

1 today about David DeRamus's rebuttal report?

2 A. No.

3 Q. Do you personally know Jeffrey Andrien?

4 A. No.

5 Q. Have you interacted with Jeffrey Andrien
6 professionally?

7 A. No.

8 Q. Have you reviewed Jeffrey Andrien's opening
9 report?

10 A. At this point I don't recall. I'm sure I --
11 I'm sure it crossed my desk, but I don't recall it
12 now.

13 Q. Have you reviewed Jeffrey Andrien's rebuttal
14 report?

15 A. Same. I don't recall it.

16 Q. Okay. Do you have any opinions developed as
17 of today regarding Jeffrey Andrien's rebuttal report?

18 A. No.

19 Q. Do you personally know Matt Weinberg?

20 A. No.

21 Q. Have you interacted with Matt Weinberg
22 professionally?

23 A. I believe we have met at a conference once,
24 but that would be the limit.

25 Q. Did you review Matt Weinberg's opening

1 reports?

2 A. Yes.

3 Q. Did you review Matt Weinberg's rebuttal
4 report?

5 A. Yes.

6 Q. As you sit here today, do you have opinions
7 developed regarding Professor Weinberg's rebuttal
8 report?

9 A. Not sufficiently developed to discuss in
10 detail today.

11 Q. Generally, do you have opinions that you
12 have developed as of today relating to Professor
13 Weinberg's rebuttal report?

14 A. Some, yes.

15 Q. Could you further expand on what those
16 opinions are?

17 A. Yes. I think Professor Weinberg's rebuttal
18 report is very different from his opening report.
19 His opening report pays -- you know, defines his
20 field of expertise as algorithmic mechanism design,
21 and he defines "algorithmic mechanism design"
22 as attention to -- algorithm design with attention to
23 economic incentives, and his opening report entirely
24 lacks attention to economic incentives.

25 The rebuttal report then attempts to develop

1 the theory to justify that, this general theory that
2 he has with so-called default participants, and
3 creates a straw man about the -- that there's -- the
4 only alternative to somebody who's totally -- well,
5 who's a default participant, as he defines it, is
6 a -- someone who is fully informed and totally
7 sophisticated, which I think is totally unfounded.

8 And I think that the rebuttal -- the
9 rebuttal report refers repeatedly, 60, 70 times, to,
10 you know, auction -- principles of auction theory,
11 which are never articulated or cited.

12 You know, I really think it's a weak report.

13 Q. And do you have any other opinions about
14 Professor Weinberg's rebuttal report as you sit here
15 today?

16 A. Well, he caught one error of mine, as we
17 have noted already, my omission of the regularity
18 condition from -- it was Theorem 2 or whatever the
19 theorem number was.

20 And then I have lots of very specific --
21 very specific responses.

22 Q. Okay. And can you recall any additional
23 specific responses as you sit here today?

24 A. They are not sufficiently developed that I
25 want to put them on the record. I want to be able to

1 develop them precisely and state them precisely for
2 the Court.

3 Q. Okay. So we have walked through --

4 A. A lot.

5 Q. We have walked through the opinions that you
6 believe you can sufficiently state regarding
7 Professor Weinberg's rebuttal report at this time?

8 A. As of today, as of right now. Just the
9 general response to his reports.

10 Q. Okay. Are there any additional preliminary
11 opinions that we could walk through that you have
12 about Professor Weinberg's rebuttal report?

13 A. They are not sufficiently specifically
14 developed that I can articulate them yet. That's the
15 testimony that this would be.

16 Q. So we have discussed all that you believe
17 you can articulate at this time?

18 A. Specifically today, yes.

19 Q. Okay. Do you personally know Cynthia Rudin?

20 A. No.

21 Q. Have you interacted with Cynthia Rudin
22 professionally?

23 A. No.

24 Q. Have you reviewed Cynthia Rudin's rebuttal
25 report?

1 A. No.

2 Q. I think that --

3 A. Not that I recall, I should say. Yes.

4 Q. Okay.

5 A. I mean, not that I recall, yes.

6 Q. Do you have any opinions developed, as you
7 sit here today, regarding Cynthia Rudin's rebuttal
8 report?

9 A. No.

10 Q. Okay. Do you personally know Parag Pathak?

11 A. Yes.

12 Q. How do you know Parag Pathak?

13 A. He was a student in the very first -- I
14 co-invented the field of market design. Professor Al
15 Roth and I taught the very first course in market
16 design in 2000, and Parag Pathak was a student there,
17 or at MIT; I've forgotten which.

18 He came out to Stanford with me, installed a
19 refrigerator in my home. I don't know if these
20 details are helpful to you.

21 I have known Parag for almost -- about --
22 almost 25 years now.

23 Q. And so you've interacted with Parag Pathak
24 professionally?

25 A. Personally, professionally, in many ways,

1 yes.

2 Q. And have you reviewed Parag Pathak's opening
3 report?

4 A. Absolutely.

5 Q. Okay. Have you reviewed his rebuttal
6 report?

7 A. I have looked at it, yes.

8 Q. Okay. Do you have any opinions as of today
9 that you've developed about Professor Pathak's
10 rebuttal report?

11 A. Nothing that I am prepared to discuss today.

12 Q. Is there anything that generally you've
13 formulated as an opinion in response to Professor
14 Pathak's rebuttal report?

15 A. Not as of today.

16 Q. Okay. And what's your opinion of Dr. Pathak
17 as an economist?

18 A. He's one of the outstanding economists of
19 his generation.

20 Q. And do you know Jacob Hochstetler?

21 A. I don't.

22 Q. Have you interacted with Jacob Hochstetler
23 professionally?

24 A. No.

25 Q. Have you reviewed Jacob Hochstetler's

1 opening report?

2 A. I'm sure I saw it, yes.

3 Q. Have you reviewed -- yes. As you sit here
4 today, do you have any additional opinions that
5 you've developed about Jacob Hochstetler's report?

6 A. No.

7 Q. Do you personally know Anil Somayaji?

8 A. No.

9 Q. Have you interacted with Anil Somayaji
10 professionally?

11 A. No.

12 Q. Have you reviewed Anil Somayaji's rebuttal
13 report?

14 A. No.

15 Q. Okay.

16 A. Not that I recall.

17 Q. Okay. So as you sit here today, we have
18 established that you have additional opinions that
19 you plan on offering at trial relating to plaintiffs'
20 expert rebuttal reports; is that correct?

21 MR. EWALT: Objection to form.

22 THE WITNESS: Yeah, as I said, I'm planning
23 on offering at trial -- you know, I fully intend to
24 comply with what I'm asked to respond to by
25 defendant's attorneys, and I don't have any plans yet

1 as to what I will offer at trial. But I certainly
2 have opinions about these matters, and I will develop
3 those opinions fully, as appropriate.

4 BY MS. ABSTON:

5 Q. Okay. And you testified that you did not
6 review a handful of rebuttal reports that were issued
7 on September 9th; is that -- is that correct?

8 A. I don't recall exactly. I didn't -- I
9 certainly didn't study them in detail. There was a
10 lot of material coming in, and this is not the only
11 thing I'm doing. And I was asked to focus on the --
12 on the issues that relate specifically to the -- the
13 questions I was asked, the auction design practices.
14 So I -- anything that appeared off point, I might
15 have glanced at, but then set aside.

16 Q. Okay. So when you testify that plaintiffs'
17 expert rebuttal reports were wrong, you were not
18 talking about the reports that you had not reviewed;
19 right?

20 MR. EWALT: Objection to form.

21 THE WITNESS: Any report I have not
22 reviewed, I don't have any opinion about.

23 BY MS. ABSTON:

24 Q. Okay. Like, for example, since you didn't
25 read the report of Dr. Rudin, you aren't sitting here

1 testifying today that you believe her report is wrong
2 in any way?

3 A. I'm not testifying to that -- that now,
4 yeah.

5 Q. And you're not testifying to any opinions --
6 strike that.

7 You don't plan to offer any opinions
8 relating to Dr. Rudin's rebuttal report at trial?

9 MR. EWALT: Objection to form.

10 THE WITNESS: Plan to offer at trial is the
11 same -- the same response that I always give. Okay?
12 Do I need to spell it out again?

13 MS. ABSTON: We're good. Okay. Let's --
14 let me make sure here.

15 Q. I want to step back quickly to your general
16 history of testifying.

17 A. Sure.

18 Q. So we will flip back to -- I think we marked
19 that as Exhibit 1.

20 A. Exhibit 1.

21 Q. Yes.

22 A. This guy. "General History of Testimony."

23 Q. Okay. And so we established that this is a
24 case that includes all litigation testimony that
25 you've given, I believe since 2000; is that correct?

1 A. That's what it says, "2000 to present."

2 Q. Okay. And of this list, were there any
3 cases that involved digital advertising outside of
4 those that we have already discussed today?

5 A. Outside of those we have discussed today.
6 So...

7 Q. These are --

8 A. So we are talking about -- we're talking
9 about 5, 6 --

10 Q. Yes, so --

11 A. -- 8 and 9 we have discussed.

12 Q. Well, yes. And maybe let's do it quickly
13 this way.

14 Looking at your list here --

15 A. Yep.

16 Q. -- excluding the Google testimony we've
17 already discussed today, let's walk through this.

18 So No. 1 is Public Utility Commission of
19 Oregon. Did that -- or what was the subject matter
20 of that case?

21 A. Nothing related to digital advertising. Do
22 you want to know more about it?

23 Q. I think that's sufficient for now. I might
24 come back to it.

25 A. Okay.

1 Q. On No. 2, the American Arbitration
2 Association entry, did that pertain to advertising
3 technology?

4 A. No, that's MCG PCS vs. Leap Wireless. And
5 no, that was about -- no.

6 Q. Did that have any relation to digital
7 advertising?

8 A. None.

9 Q. Okay. No. 3, another American Arbitration
10 Association.

11 A. That was about acquisition of mineral
12 rights.

13 Q. Okay. And so that didn't have anything to
14 do with digital advertising or advertising
15 technology?

16 A. That's right.

17 Q. Okay. No. 4, this appears --

18 A. Mario Gabelli, that's related to PCS
19 communication. That's related to bidding and
20 spectrum auctions.

21 Q. So that had nothing to do with digital
22 advertising or advertising technology?

23 A. Right.

24 Q. Okay. No. 6 --

25 A. No. 5.

1 Q. Oh, I'm sorry. No. 5 we've already spoken
2 about today.

3 A. Yeah.

4 Q. "Bid for Position vs. Google."

5 So No. 6 would be, let's see, Marla
6 Tidenberg -- I'm going to butcher that --

7 A. Versus BidZ.

8 Q. Versus BidZ. Does that have anything to do
9 with digital advertising?

10 A. It had to do with online auctions but not
11 digital advertising.

12 Q. Did that have anything to do with
13 advertising technology?

14 A. No, it did not.

15 Q. No. 7 is the Alaska Electric Pension Fund
16 case. Did that have anything to do with digital
17 advertising?

18 A. It had to do with securities markets, not
19 digital advertising.

20 Q. And then I think we've established today
21 that there are some entries missing off of this list,
22 as the list concludes with No. 9, which is your DOJ
23 testimony; is that correct?

24 MR. EWALT: Objection to form.

25 THE WITNESS: The list includes --

1 BY MS. ABSTON:

2 Q. Well, let me ask it like this --

3 A. The list includes No. 9. That's correct.

4 Q. Okay. Does this case include information
5 about the -- your expertise or expert testimony that
6 you're providing in this case today?

7 MR. EWALT: Objection to form.

8 THE WITNESS: Does No. 9 include
9 information?

10 BY MS. ABSTON:

11 Q. Does the list overall include your testimony
12 that you're offering here today?

13 A. Yes, what did we end up omitting? I've
14 forgotten what's omitted already.

15 Q. So it -- but --

16 A. Is there something -- I don't recall what
17 was omitted.

18 Q. If we were to update this list to be an
19 accurate representation of all the testimony that you
20 have been retained in and offered expert opinions on,
21 up to date, it would require us to update this list
22 and include this case caption for today's deposition;
23 is that correct?

24 A. Oh, if --

25 MR. EWALT: Objection to form.

1 THE WITNESS: Expert -- yeah, the expert
2 report was delivered in this period, so it would be
3 added at this point.

4 BY MS. ABSTON:

5 Q. Okay. So in theory, we would correct this
6 part of your CV to add --

7 A. I'm not sure that's a correction. That's an
8 update.

9 Q. An update. An update, okay.

10 A. Yeah.

11 Q. So we would update to add this case.

12 Are there any other cases that we would add
13 that was not discussed today that you've currently
14 been retained in as an expert witness?

15 MR. EWALT: Objection to form.

16 THE WITNESS: What's that?

17 MR. EWALT: I'm objecting to form. And we
18 should -- I should also caution you not to answer, to
19 the extent that your answer would reveal any legal
20 work you're doing in nonpublic matters.

21 THE WITNESS: Okay. So to the best of my
22 recollection then, nothing.

23 BY MS. ABSTON:

24 Q. Okay. So you've not issued any other expert
25 reports or given any sort of expert testimony that we

1 continuing litigation that Google is involved in.
2 There's a case in New York that Google is involved
3 in. There's a case -- there are cases in Europe and
4 in Israel that Google is involved in that are related
5 to adtech.

6 Q. Okay.

7 A. I'm -- I'm aware of a number of other cases
8 that Google is involved in.

9 Q. And how did you come to discover those
10 litigations?

11 MR. EWALT: Objection. I'm going to
12 instruct you not to answer, to the extent that your
13 answer would reveal communications with counsel.

14 MS. ABSTON: Strike that.

15 BY MS. ABSTON:

16 Q. Without revealing any privileged
17 communications, if you're able to, how did you become
18 aware of other Google adtech litigation?

19 A. Well, one of my -- another one of my former
20 students is a witness in another case, who told me he
21 was a witness in another case.

22 Q. Okay. And are you able to disclose who that
23 former student is?

24 A. I am not, no.

25 Q. Okay. And are you able to disclose the

1 other case that your former student is a part of?

2 A. It's a case -- the case in Israel.

3 Q. And you mentioned a case in New York; is
4 that right?

5 A. Yes.

6 Q. Okay. And how did you become aware of that
7 case in the Southern District of New York?

8 MR. EWALT: Objection. I'm going to
9 instruct you not to answer, to the extent that your
10 answer would reveal the contents of communication
11 with counsel.

12 THE WITNESS: No answer.

13 BY MS. ABSTON:

14 Q. And what's your understanding of the case in
15 New York?

16 A. I understand that it involves similar issues
17 to these other two cases.

18 MS. ABSTON: I think if we can take a quick
19 break, we can go off the record.

20 THE VIDEOGRAPHER: The time is 5:06 p.m.
21 Pacific Time. We are going off the record.

22 (Recess taken.)

23 THE VIDEOGRAPHER: The time is 5:27 p.m.
24 Pacific Time. We are back on the record.

25 ///

1 BY MS. ABSTON:

2 Q. Okay. Dr. Milgrom, did you talk with
3 counsel over the break?

4 A. Yes.

5 Q. And did you talk about the substance of your
6 testimony today?

7 MR. EWALT: I'm going to instruct you not to
8 answer, to the extent your answer would reveal
9 communications with counsel.

10 BY MS. ABSTON:

11 Q. Okay. And you're going to follow that
12 instruction?

13 A. I am.

14 Q. Okay. Let's -- let's wrap up with what you
15 have planned for the upcoming Eastern District of
16 Texas case trial. Okay? Does that sounds good?

17 A. Well, I don't know that I have anything
18 planned.

19 Q. Okay. Are you aware of the trial date in
20 this case?

21 A. I have it in my calendar.

22 Q. Okay. And you plan on testifying in person
23 at trial here in this case?

24 MR. EWALT: Objection to form.

25 THE WITNESS: I expect to be available to

1 testify in person in trial in this case.

2 BY MS. ABSTON:

3 Q. Do you think you have anything left to do in
4 this case prior to trial?

5 A. Yes.

6 Q. And what is that?

7 A. I think to work out the response to the
8 rebuttal testimony that was offered in connection
9 with the matters that I was supposed to comment on.

10 Q. And we've discussed that to the fullest
11 extent that we can today; is that correct?

12 A. Fullest extent we can today, that's right.

13 Q. Okay. Do you plan on submitting any sort of
14 supplementary opinion in this case?

15 A. I don't -- I'm not aware that that's part of
16 the process. If it were part of the process, I
17 might. But I'm not aware of any such thing.

18 Q. But you're not, like, drafting a report
19 right now in relation to this case?

20 A. No.

21 Q. And did you read any court decisions in
22 preparing for your opinions in this case?

23 A. At the very, very beginning, I was given
24 some things to read basically about antitrust law, to
25 try to learn a little bit about it.

1 Q. Was that case law that you were given or
2 were those recent court decisions?

3 A. There was a Law Review article. This was
4 right at the beginning, just to get me, you know,
5 in -- there was a Law Review article and one case
6 that I was given to look at.

7 Q. Okay.

8 A. Excuse me. Pardon me a moment.

9 Q. Bless you.

10 And did you look at any statutes when
11 drafting your expert report in this case?

12 A. I did not.

13 Q. Okay. And when you were drafting your
14 expert report in this case, did you look at any
15 specific case law, other than what you've previously
16 discussed?

17 A. Nothing -- nothing other than what I've
18 described.

19 Q. Okay. Okay. Earlier we discussed your time
20 as a visiting research professor at Google; is that
21 correct?

22 A. I think that title was "visiting research
23 associate." I think it's in here.

24 Q. Was your title "visiting research scholar"
25 at Google in 2017?

1 A. Let's see if it's in here. Hopefully it's
2 in here. Maybe it's not.

3 Q. I believe it's in your report.

4 A. Okay. If it's in my report, it will tell
5 you the year.

6 Q. I will represent to you on page 11 of your
7 report, paragraph 9, you were a visiting research
8 scholar at Google --

9 A. Okay.

10 Q. -- from 2017 to 2018.

11 A. Thank you. Very good. Yes.

12 Q. And so we discussed your time at Google
13 earlier today.

14 Do you recall that?

15 A. We have talked about it some then. Yes, I
16 recall.

17 Q. Okay. And you were there approximately 9 to
18 12 months; is that right?

19 A. Certainly not 12 months. Probably less than
20 9 months. If I were guessing, I would guess that it
21 was more like 6 months.

22 Q. And you testified that while you were a
23 visiting research scholar, you received compensation
24 from Google?

25 A. I did, yes.

1 THE WITNESS: Pardon me. There is something
2 ringing, and I want to make sure this is all off. I
3 apologize for that.

4 Okay. That should stop it.

5 BY MS. ABSTON:

6 Q. Okay. And so just to refresh, you testified
7 while you were a visiting research scholar that you
8 received compensation from Google?

9 A. Yes.

10 Q. And you received certain benefits while --
11 from Google at that time?

12 A. Like lunch, yes. Yes.

13 Q. And you had an office option at the Google
14 campus for your --

15 A. Yes.

16 Q. -- one-day-a-week visit?

17 A. Yes.

18 Q. Okay. And as a part of your visiting
19 scholar position, did you receive a Google email
20 account?

21 A. I did, yes.

22 Q. Okay. And do you recall what that Google
23 email account address was?

24 A. Yes, I do.

25 Q. And what was that Google email address?

1 A. I believe it was milgrom@google.com.

2 Q. Okay. And have you -- and so that email
3 address expired -- or strike that.

4 Did you ever use that email address after
5 you left your position as a visiting research scholar
6 at Google?

7 A. No. It was canceled when I left.

8 Q. Okay. And then with that access, did you
9 have any -- with that -- strike that.

10 With that email address, did you have access
11 to and use any other Google applications?

12 A. "Any other Google applications."

13 Well, yes, the same as you would from any
14 email address, except I had access to internal ones
15 because of that, yes.

16 Q. So what were some of the Google applications
17 that you had access to?

18 A. You know, Google Docs. There was some file
19 sharing; I shared files with other people at Google
20 sometimes. You know, just the standard Google office
21 applications was what I used. I probably had access
22 to more than that, but that's what I used.

23 Q. Okay. Did you have access to Google Drive?

24 A. I had a Google Drive, yes.

25 Q. Did you have access to Google Hangouts?

1 A. I'm not sure. I never used Google Hangouts.
2 I might have had access to it.

3 Q. Did you have access to Google Chat?

4 A. I imagine, having a Google email account,
5 there would have been access to Google Chat, Google
6 Meet.

7 Q. How did you typically correspond with other
8 Google employees?

9 A. Email.

10 Q. And you used all of these apps during your
11 time as a visiting research scholar?

12 MR. EWALT: Objection to form.

13 THE WITNESS: As I said, I've used some of
14 these apps. That is -- to the extent I used them at
15 all, it was during that time.

16 BY MS. ABSTON:

17 Q. Okay. And during that time period, what
18 would you have talked to Google employees about?

19 A. I was primarily interested -- so the
20 conversations that I initiated were almost entirely
21 about [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1

[REDACTED]

2

[REDACTED] and

3

things that they contacted me about were mostly the

4

same, but a few others. I also got contacted by

5

others at Google.

6

Q. Okay. So when Google employees contacted

7

you and reached out to you, what platform did they

8

use to do so?

9

A. Email.

10

Q. Okay. Did a Google employee ever reach out

11

to you by chat?

12

A. I don't recall that ever happening. If it

13

did, it was rare.

14

Q. Okay. But it's possible that a Google

15

employee could have reached out to you by chat during

16

your time as a visiting research scholar?

17

A. It's possible they could have, yeah.

18

Q. Okay. And when you said your email address

19

is canceled, do you mean your email address was

20

deleted?

21

A. I mean, I -- I don't know exactly how the

22

details work. But I had -- while I was at Google,

23

they gave me a Chromebook, which was a laptop that I

24

could use to access whatever I was accessing at

25

Google.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] I don't know.

Q. Okay. And during that time period, would you have talked to Google employees about any sort of auction-related discussion?

A. Yes.

Q. Okay. And what type of auction discussion would you have had with Google employees during your time as a visiting research scholar?

A. Yeah, so -- I'm having trouble remembering details, but [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] And we talked

1 about [REDACTED].

2 [REDACTED]

3 [REDACTED]

4 [REDACTED] You know, those sorts
5 of things.

6 Q. And did you observe Google employees using
7 Google Chat?

8 A. I don't think so, no. I mean, when I was
9 with them -- when I met with employees, it was either
10 in person or we communicated by email, or quite often
11 Google Meet. The -- we'd have meetings, and some
12 people would be participating remotely.

13 Q. And were you aware of Project Bernanke?

14 MR. EWALT: Objection to form.

15 THE WITNESS: When?

16 BY MS. ABSTON:

17 Q. At any point in time -- strike that.

18 Are you currently aware of Project Bernanke?

19 A. Uh-huh.

20 Q. When did you first become aware of Project
21 Bernanke?

22 A. In connection with these cases.

23 Q. When did you first -- are you aware of RPO?

24 A. I am, yeah.

25 Q. When did you first become aware of RPO?

1 A. Oh, as so named in connection with these
2 cases.

3 Q. Are you aware of DRS?

4 A. Yes.

5 Q. When did you first become aware of DRS?

6 A. In connection with these cases.

7 Q. And are you aware of -- okay.

8 Were there any other programs that we have
9 not discussed today that you were aware of when you
10 were a visiting -- or -- yeah, a visiting research
11 scholar at Google?

12 MR. EWALT: Objection to form.

13 THE WITNESS: There were programs that I was
14 aware of even before I became -- when I was at OpenX,
15 I was aware of EDA and helped OpenX design their own
16 version.

17 BY MS. ABSTON:

18 Q. Are there additional programs that you were
19 aware of prior to becoming a visiting research
20 scholar at Google?

21 A. Well, I didn't know RPO by name, but it --
22 you know, at OpenX we also talked about how we could
23 help publishers set more effective floor prices.

24 Q. And were there Google programs related to
25 their auctions that you were aware of that were not

1 publicly known?

2 A. I wouldn't know what was publicly known.
3 That wasn't part of what I paid any attention to at
4 that time.

5 Q. Okay. Okay. You've mentioned in relation
6 to Auctionomics about Silvia today.

7 Do you recall that testimony?

8 A. Absolutely. Yeah.

9 Q. And what is Silvia's full name?

10 A. Silvia Console Battilana. Console is
11 C-O-N-S-O-L-E, and Battilana is B-A-T-T-I-L-I-A-N-A
12 [sic].

13 Q. Silvia is a co-founder of Auctionomics; is
14 that right?

15 A. Yes.

16 Q. And so when Auctionomics was founded in
17 2011, it was you and her as the two founders; is that
18 correct?

19 A. That's right.

20 Q. And how did you originally meet Silvia?

21 A. She was -- before she received her Ph.D. --
22 she received her Ph.D. in economics in -- at
23 Stanford, and she had been a student in one of my
24 classes. And we had worked together on some
25 projects -- not research projects, but projects

1 related to the economics department at Stanford, and
2 she was incredibly effective. She was a planner,
3 high energy, got things done, did whatever was needed
4 to make things work. I thought she was -- would make
5 a great business partner, so I invited her.

6 Q. Okay. And what are her current job
7 responsibilities at Auctionomics?

8 A. She's the CEO. She -- is that enough, or do
9 you need more?

10 Q. Well, you mentioned today that she's -- she
11 holds many different job positions, such as managing
12 the invoices for Auctionomics and assembling the
13 teams that are associated with your expert witness
14 retention. But I'm wondering if there's any other
15 job -- job positions that she currently takes on?

16 A. We're a -- we're a small company, and I am a
17 full-time professor. And Silvia runs everything.
18 She does the hiring. She, you know, negotiates --
19 negotiates salaries. She negotiates our contracts.
20 She, you know, manages 90 percent of the finances.
21 She -- although we have staff that -- that helps her
22 with that.

23 She's -- she, you know, markets our
24 services. She makes connections. She's really good
25 at that. She spends a lot of time -- she's a member

1 of the Young Global Leaders and has connections, goes
2 to meetings, keep -- makes connections. That helps
3 us find business sometimes. So --

4 Q. Okay.

5 A. -- great partner.

6 Q. And was she always CEO of Auctionomics?

7 A. Yeah, right from the beginning. I'm -- I'm
8 a full-time professor. I needed a partner who
9 could -- this was what the deal was. I needed a
10 partner who could run the business and take care of
11 everything. And my name would help bring in
12 business. And I would work on interesting projects
13 and make some money, and she would run the business.
14 That's --

15 Q. Okay.

16 A. -- probably have inferred that from some of
17 the stuff that's gone on here. Yeah.

18 Q. Okay. You -- I'm going to bounce around a
19 little bit to some of your prior testimony today.

20 A. Uh-huh.

21 Q. So you previously discussed some of
22 Auctionomics' seven-figure expenses that they've --
23 or that have contributed to the opinions that you're
24 forming in this case.

25 Do you recall that?

1 MR. EWALT: Objection to form.

2 THE WITNESS: I think you're talking about
3 the data and software stuff.

4 BY MS. ABSTON:

5 Q. Right. So for any expenses that you've
6 incurred in forming your opinions in this case, did
7 Google reimburse you for those?

8 MR. EWALT: Objection to form.

9 THE WITNESS: We billed Google for them, and
10 they've -- most of them have been -- they are all --
11 everything is reimbursed with a lag.

12 BY MS. ABSTON:

13 Q. How much of a lag?

14 A. Well, we typically bill at the end of the
15 month each month for all of our expenses. And if we
16 manage to get everything out on time, we get paid
17 within, I don't know, six weeks, something like that.

18 Q. And you previously testified about [REDACTED]

19 [REDACTED] Do you recall that testimony?

20 A. Well, I recall [REDACTED] and I recall that I
21 testified about him. Is that enough?

22 Q. Okay. Yes.

23 Prior to your retention as a Google -- as
24 Google's expert within the DOJ and Eastern District
25 of Texas case, did you ever talk to [REDACTED] about any of

1 the Google conduct at issue?

2 MR. EWALT: Objection to form.

3 THE WITNESS: I remember in 2015, I think it
4 was about 2015, having a discussion about some
5 programs.

6 BY MS. ABSTON:

7 Q. And what prompted that discussion in 2015?

8 A. Academic conference. I had presented my
9 paper with Nick Arnosti and Marissa Beck. That's
10 listed somewhere. And I was concerned about -- well,
11 possible effect of EDA. And I recall [REDACTED] telling me
12 I had it wrong, that the -- that their -- that the
13 controls they had in place would eliminate that
14 problem, and they didn't think they needed to modify
15 the option design on that account. And it turns out
16 that's what is confirmed by my own data analysis now.

17 Q. Were there any other programs that you
18 discussed with [REDACTED] at that time?

19 A. No, that one stood out because I had just
20 written a paper about it. And -- and the auction
21 design that I had created for OpenX was to mitigate
22 that problem. And [REDACTED] claimed that Google didn't
23 have that problem. And as I say, as it turns out,
24 that seems to be correct.

25 Q. Okay. And that was during the time period

1 that you were providing commercial advice for
2 OpenX --

3 A. Yes.

4 Q. -- in 2015?

5 A. Uh-huh.

6 Q. Did you ever speak with [REDACTED] regarding any
7 anti -- antitrust concerns related to Google?

8 A. No, I don't believe I have.

9 Q. Okay. Have you ever spoken with [REDACTED] prior
10 to your retention as Google's expert witness within
11 the DOJ or Eastern District of Texas matter, about
12 any antitrust concerns specifically related to
13 auctions?

14 A. I do not recall having any such discussions
15 with [REDACTED].

16 Q. Okay. And just so the record is clear, what
17 was your concern at the time, in 2015, about EDA?

18 A. A concern that we call adverse selection.
19 Does that code word mean anything to you?

20 Q. No.

21 A. Okay.

22 Q. Would you further provide any more
23 information about your concerns related to EDA in
24 2015?

25 A. Yeah. So it dates -- it dates actually all

1 the way back to the Yahoo days. Jon Levin had
2 written about in the -- in our little paper in the
3 American Economic Review about the "happy contract."
4 I don't know if -- whether you've read any of my
5 stuff.

6 But anyway, the possibility that with fine
7 targeting, the -- there might be more valuable
8 impressions and less valuable impressions, and the
9 people who had access to finer targeting would claim
10 the more valuable impressions and harm those who had
11 less information, so it's called adverse selection.
12 The selection of impressions left over for the other
13 group would be adversely selected, from their point
14 of view. And so that was a logical possibility that
15 could have been true, and that was suggested by
16 economic theory.

17 But it turns out that, in fact, the -- what
18 is mostly going on, the overwhelming -- what's
19 overwhelmingly important is matching, that is,
20 getting the right ads to the right people rather than
21 shifting, you know, better ad -- and there are good
22 reasons for that, too. If you wanted to go into
23 them, I could tell you something about that.

24 Q. So you had concern about adverse selection,
25 and [REDACTED] disagreed with you at the time?

1 A. He told me that -- that Google had looked at
2 that and found [REDACTED].

3 Q. And that was as early as 2009?

4 A. '15.

5 Q. Okay. But you started having concerns about
6 it in 2009?

7 A. I started having concerns at Yahoo in 2009.
8 It might have -- it might have been a problem in
9 2009. I'm not sure. But in 2015, we had written a
10 paper about it and -- about the theory and about how
11 auction design could be modified to mitigate the
12 problem.

13 And [REDACTED] told me that Google had looked at it
14 and figured out that [REDACTED]

15 Q. Okay. And what was the name of the paper in
16 2009 that you published?

17 A. The 2009 paper?

18 Q. Uh-huh.

19 A. It's with -- it's my only paper with Jon
20 Levin, and it's --

21 Q. Okay. And it's contained within your CV?

22 A. It's in my CV.

23 Q. And then --

24 A. The 2015 paper is with Nick Arnosti,
25 A-R-N-O-S-T-I, and Marissa Beck.

1 Q. Okay.

2 A. Maybe it's 2016. I'm not quite sure. In
3 around there.

4 Q. Okay. Dr. Milgrom, do you currently own any
5 Google stock?

6 A. No.

7 Q. Have you ever owned any Google stock?

8 A. No.

9 Q. Do you know if you have any family members
10 who own Google stock?

11 A. I don't know if I have any family -- I doubt
12 it.

13 Q. Have you ever had any family members that
14 have worked for Google?

15 A. Family members that work for Google. No, I
16 don't think so. Nobody close, certainly.

17 Q. And we've covered today any time that you've
18 worked for Google in a nonlitigation capacity;
19 correct?

20 A. We have.

21 Q. Okay. And then you testified today that
22 you've been to, I believe, at least one of Google's
23 offices; is that correct?

24 A. That I've been to their offices? Oh, yeah,
25 well, I've been to several of their offices several

1 times.

2 Q. Okay. And which offices have you been to?

3 A. I don't remember the building names.
4 There's a bunch of them in Mountain View.

5 I believe the -- the -- I testified as early
6 as -- well, when the IPO was taking place, I was on
7 the Google campus a couple of times for that.

8 When I was present for the -- as a visiting
9 research scholar, or whatever the position was, I was
10 present roughly once a week for that.

11 And there are a couple of other times. You
12 know, I've been curious about -- oh, and there have
13 been other academic conferences that have happened on
14 the Google campus. Just like sometimes we have
15 conferences at Stanford, sometimes there are
16 conferences at Google. I've been on -- on the Google
17 campus once or twice for conferences. I'm not really
18 quite sure where all those conferences were.

19 Q. About how many academic conferences have you
20 attended at Google?

21 A. Well, I just said once -- once or twice for
22 the academic conferences. Actually, I think only
23 once. I think the other one that I'm thinking of was
24 not actually on the Google campus.

25 I think once is just the answer to that

1 question.

2 Q. Okay. And do you currently supervise any
3 Ph.D. students who are employed by Google?

4 A. Ph.D. students employed by Google.

5 Q. Yes.

6 A. No. No, I don't.

7 Q. And are you aware of any of your Ph.D.
8 students who have gone on to work for Google?

9 A. There are Ph.D. students from Stanford
10 economics who have gone on to work for Google. None
11 of them were my direct supervision. But some of
12 them -- by my students, you mean anybody who has
13 taken a class from me, then possibly.

14 Q. Okay. And then I want to step back and talk
15 a little bit more about your Nobel before we get done
16 for the day.

17 So I'm going to hand you what we're going to
18 mark as Exhibit 14, which is -- if you take a moment
19 and review that. I'm going to hand you this with the
20 sticker.

21 A. Thank you.

22 (Exhibit No. 14 was marked.)

23 MS. ABSTON: It's M-30. I'm sorry.

24 Q. Do you recognize this document?

25 A. Yeah, I guess I do. When was this? March

1 2021. Yes. Looks like.

2 Q. Do you recall giving this interview in March
3 of 2021?

4 A. Vaguely, yes.

5 Q. Okay. Have you reviewed this interview
6 before?

7 A. Probably. Yeah. Probably so.

8 Q. Do you have any reason to believe that this
9 is not a complete and accurate copy of the interview
10 that was published online in --

11 A. No.

12 Q. -- March 2021?

13 A. It says, "This interview has been edited for
14 length and clarity." Okay. So as it says at the
15 very end, the interview has been edited for length
16 and clarity. So it's been edited from words close to
17 mine here.

18 Q. Okay. And at the bottom of that, there's a
19 URL; is that correct?

20 A. There is indeed.

21 MS. ABSTON: Okay. Okay. And I'm going to
22 now give you what I'm going to mark as Exhibit 15.
23 This is M-42.

24 (Exhibit No. 15 was marked.)

25 MS. ABSTON: Take a moment and review that.

1 Q. Do you recognize this document?

2 A. This looks familiar, yes.

3 Q. Okay. Did you -- have you seen this
4 document before?

5 A. I believe so. It looks familiar.

6 Q. Do you recall the last time that you've seen
7 this document?

8 A. No.

9 Q. Okay. And can you read the title of this
10 document?

11 A. "The Quest for the Perfect Auction."

12 Q. Okay. And it appears at the top right-hand
13 corner, it says, "The Prize in Economic Sciences of
14 2020" --

15 A. Yes.

16 Q. -- is that correct?

17 A. Yes, that's right.

18 Q. Okay. And if we flip to the very last page
19 here, it believes -- I believe that this is an
20 article that was written about you and Professor
21 Wilson; is that correct?

22 A. It sure looks that way.

23 Q. Okay. Okay. And then at the top --
24 flipping back to the first page, at the top left-hand
25 corner, is there some sort of seal or logo on the

1 document?

2 A. Yes, from the Royal Swedish Academy of
3 Sciences.

4 Q. And you recognize that seal as meaning that
5 it comes from the Royal Swedish Academy of Sciences?

6 A. It looks familiar, yes.

7 Q. Okay. And do you recall any specific
8 contributions that you may have made to this piece?

9 MR. EWALT: Objection to form.

10 THE WITNESS: I don't recall that I made
11 specific contributions to this piece.

12 BY MS. ABSTON:

13 Q. Okay. But you may have reviewed it or you
14 recall seeing it?

15 A. There was a lot happening. I tell you, it
16 was the busiest time of my life was right after the
17 Nobel Prize. The phone never stopped ringing. News
18 interviews. Potential clients. Offers. That was
19 not pleasant.

20 Q. Well, is there -- is there such a thing as a
21 perfect auction?

22 A. "Is there such a thing as a perfect
23 auction."

24 Well, this is a -- you know, this is -- I
25 wouldn't have chosen this language, let's just say.

1 Q. Okay. And why would you have not chosen
2 that language?

3 A. The -- when we design auctions, we have
4 multiple objectives, and sometimes they're in tension
5 with one -- in tension with one another, and
6 there's -- there's no perfect way of resolving the
7 tension.

8 So -- so I'm -- I don't think there's such a
9 thing as -- well, I guess I'm answering your previous
10 question. I guess I don't think there's such a thing
11 as a perfect auction unless you've -- rather, there's
12 an auction that optimally -- that gives you a good
13 balance of the objectives that matter to you.

14 Q. Okay. And then I -- our final stop.

15 You mentioned at the beginning of our time
16 today that you have a CV that you have updated since
17 July 30th, 2024; is that correct?

18 A. Quite possibly. It would also -- it would
19 be online, and I could look for it and see if there's
20 a -- but you could also find it.

21 MS. ABSTON: Okay. We would like to mark
22 that new CV as an exhibit, or at least ask that
23 counsel provide it to us if it's made available to
24 you. Okay. Are we -- are you amenable to that or
25 amenable today --

1 MR. EWALT: Not today.

2 MS. ABSTON: -- in providing an updated CV?

3 MR. EWALT: Not today.

4 MS. ABSTON: Okay. Then I think,
5 Dr. Milgrom, I want to thank you for your time today.
6 Thank you for -- I know it was a long day, but I want
7 to reserve my time for if Google has any questions.
8 So thank you.

9 THE WITNESS: Okay. All right.

10 MS. ABSTON: I will pass the witness.

11 MR. EWALT: All right. Let's go off the
12 record.

13 THE VIDEOGRAPHER: The time is 5:59 p.m.
14 Pacific Time. We are going off the record.

15 (Recess taken.)

16 THE VIDEOGRAPHER: The time is 6:24 p.m.
17 Pacific Time. We are back on the record.

18 EXAMINATION

19 BY MR. EWALT:

20 Q. Good evening, Professor Milgrom.

21 A. Hello.

22 Q. Do you recall being asked questions earlier
23 today about your time as a visiting research scholar
24 at Google?

25 A. I do, yes.

1 Q. While you were a visiting research scholar
2 at Google, did you work on any projects related to
3 display advertising?

4 A. I did not, no.

5 Q. Would you please turn to Exhibit 3, which is
6 the list of materials considered in your Texas
7 report.

8 A. Yes, I have it here.

9 Q. Do you see on the first page a list of
10 deposition transcripts?

11 A. Yes.

12 Q. And do you recall testifying earlier today
13 about deposition transcripts?

14 A. I've talked -- yes, I talked some about
15 deposition transcripts. Yes.

16 Q. Did you review the deposition transcripts
17 listed in Exhibit 3 when you were formulating your
18 opinions in this case?

19 A. Yeah, they were included in the material
20 that was reviewed.

21 Q. Do you recall being asked questions about
22 your methodology?

23 A. I do, yes.

24 Q. In preparing your report in this case, did
25 you apply the same techniques and rigor that you use

1 in your academic work?

2 A. Yes. I'm actually very proud of writing
3 this at the same level that I write my best academic
4 work.

5 Q. In preparing your report in this case, did
6 you apply mathematical principles, results, and
7 insights that stem from economical auction theory and
8 game theory literatures?

9 A. Yes.

10 Q. In preparing your report in this case, did
11 you apply concepts and principles from the field of
12 market design?

13 A. Yes.

14 Q. In preparing your report in this case, did
15 you analyze facts, including documentary evidence and
16 testimony, about the practices at issue in this case?

17 A. Yes.

18 Q. Would you please turn to Exhibit 13, which
19 is your report in this case.

20 A. Sure.

21 Q. And within Exhibit 13, I'd ask you to take a
22 look at paragraph 328.

23 A. Paragraph 3- -- 400. Man. Do you know what
24 page it's on?

25 Q. 237.

1 A. Let's get this off, then.

2 Oh, you've got it up there, anyway.

3 Okay. Got it.

4 Q. In paragraph 328 is where you discuss
5 Theorem 2; is that correct?

6 A. Yes.

7 Q. And do you recall discussing Theorem 2
8 earlier today?

9 A. I do, yes.

10 Q. And I believe you testified that you realize
11 that your statement of Theorem 2 in the report should
12 have specified a condition about regularity.

13 A. Yes.

14 Q. Do I have that right?

15 A. Yes.

16 Q. What is the regularity condition?

17 A. It's a standard condition in auction theory
18 that implies that a certain function is concave in
19 shape.

20 Q. Is regularity a common assumption in auction
21 theory?

22 A. Almost universal, yes.

23 Q. Did you use Google data to investigate
24 whether the regularity condition is satisfied?

25 A. Actually, I used Google data to investigate

1 the conclusion of the theorem directly, whether or
2 not the regularity condition applied. Since one can
3 argue about approximations and assumptions, and
4 really it's the conclusions that matter.

5 Q. And do the updates to paragraph 328 that you
6 testified about earlier today cause you to change any
7 of the conclusions in your report?

8 A. No, neither the updates nor the data causes
9 me to change the conclusion. This floor price does,
10 within practical -- for all practical purposes,
11 maximize publisher revenue.

12 MR. EWALT: Thank you, Professor Milgrom. I
13 will pass the witness.

14 MS. ABSTON: Three minutes. Can we go off
15 the record?

16 THE VIDEOGRAPHER: The time is 6:28 p.m.
17 Pacific Time. We are going off the record.

18 (Recess taken.)

19 THE VIDEOGRAPHER: The time is 6:35 p.m.
20 Pacific Time. We are back on the record.

21 FURTHER EXAMINATION

22 BY MS. ABSTON:

23 Q. Dr. Milgrom, I just have a few questions for
24 you.

25 A. Sure.

1 Q. So you just offered some testimony regarding
2 the insertion that we made to paragraph 328 today.

3 Do you recall that testimony?

4 A. Yes.

5 Q. And you stated that the data did not cause
6 you to change your conclusion; is that correct?

7 A. That was one of the things I said, yeah.

8 Q. And did you reexamine the data after noting
9 your omission?

10 A. Yes.

11 Q. Okay. And then you testified that Exhibit 3
12 contains all the deposition transcripts that you
13 relied upon in forming your opinions in this case; is
14 that correct?

15 A. Yes.

16 Q. And did you personally read all of these
17 deposition transcripts from start to finish?

18 A. No.

19 Q. Okay. Which ones did you read?

20 A. From start to finish, I didn't read any of
21 them from start to finish. They were in the database
22 that we -- that I searched. And when I cite -- and I
23 cite pieces of them when they are relied on in the
24 report.

25 Q. Okay. Did you review any deposition

1 summaries when you were forming your opinions in this
2 report?

3 A. I don't think so.

4 Q. Okay.

5 A. I don't recall reviewing deposition summary.
6 What I recall was -- was searching for -- for certain
7 things, and this is in the database that we searched.

8 MS. ABSTON: Okay. Thank you so much for
9 your time today. We appreciate it.

10 THE WITNESS: Okay. You're welcome.

11 MS. ABSTON: I will pass the witness.

12 MR. EWALT: One question.

13 FURTHER EXAMINATION

14 BY MR. EWALT:

15 Q. Professor Milgrom, did you review at least
16 parts of all of the depositions listed in Exhibit 3,
17 your list of materials relied upon?

18 A. Yes.

19 MR. EWALT: Thank you. No further
20 questions.

21 THE VIDEOGRAPHER: This concludes today's
22 testimony given by Dr. Paul Milgrom. Going off the
23 record at 6:37 p.m. Pacific Time.

24 (The deposition was concluded at 6:37 p.m.)

25 --o0o--

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1 Please be advised I have read the foregoing
2 deposition, and I state there are:

3 (Check one) _____NO CORRECTIONS

4 _____CORRECTIONS PER ATTACHED

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7 _____
8 PAUL R. MILGROM, Ph.D.
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DEPONENT'S CHANGES OR CORRECTIONS

Note: If you are adding to your testimony, print the exact words you want to add. If you are deleting from your testimony, print the exact words you want to delete. Specify with "Add" or "Delete" and sign this form.

DEPOSITION OF: PAUL R. MILGROM, Ph.D.

CASE: STATE OF TEXAS, ET AL., VS. GOOGLE

DATE OF DEPOSITION: NOVEMBER 21, 2024

PAGE	LINE	CHANGE/ADD/DELETE
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DEPONENT'S SIGNATURE

DATE _____

CERTIFICATE OF REPORTER

I, SANDRA BUNCH VANDER POL, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth and nothing but the truth in the within-entitled cause;

That said deposition was taken down in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of the said witness, PAUL R. MILGROM, Ph.D., was thereafter reduced to typewriting (pages 1 - 348), by computer, under my direction and supervision;

That before completion of the deposition, review of the transcript was requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

DATED: November 22, 2024

Sandra Bunch VanderPol

SANDRA BUNCH VANDER POL, CSR #3032

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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